

American FORESTS



CHRISTMAS 1933

A *Friend* in the house

"It would be a hardship for me to be without a telephone. Each evening, you see, my son calls up to chat with me. That is the brightest spot in my day."

"Mother, wouldn't it be awful without a telephone? That ice cream would never have come for the party if we hadn't called up about it."

"... then Jim grabbed the telephone and called the doctor. If it hadn't been for that, I don't know what would have happened to Doris."



THERE are many fine things in life that we take almost for granted. Health, water, sunlight, green fields, loyal friends, a home to live in. . . . Not until some mischance deprives us of these priceless possessions do we learn to esteem them at their true value.

It is in much the same manner that most people regard the telephone. Millions of men and women have never known what it is to be without one. Each day, each week, each year, they use it freely, casually, as a matter of course.

The telephone has won an important place for

itself in life and living because of service rendered. To keep friend in constant touch with friend, to help manage a household smoothly and efficiently, to give larger scope and opportunity to business of every kind, to protect loved ones in time of unexpected danger . . . this is the task of the telephone.

It stands ever ready to serve you — to carry your voice and your words to any one of millions of other telephones in this country or in foreign lands. You are in touch with everything and everybody when you have a telephone.

AMERICAN TELEPHONE AND TELEGRAPH COMPANY



Entered as second-class matter at the Post-Office at Washington, D. C., under the Act of March 3, 1879. Acceptable for mailing at special rate of postage provided in Section 1103, Act of October 3, 1917, authorized July 10, 1918. Additional Entry at Baltimore, Md., December 29, 1931.



Christmas in Yosemite

AMERICAN FORESTS

OID BUTLER, Editor



L. M. CROMELIN and ERLE KAUFFMAN, Assistant Editors

DECEMBER, 1933 ♦ ♦ ♦ Vol. 39 ♦ ♦ ♦ No. 12

Published Monthly—35 cents a copy—\$4.00 a year

THE COVER
"The Snow Trail"
Photograph by VICTOR SCHEFFER

DAWN OF A NEW DAY
By ALLEN COOK..... 531

ROBERT Y. STUART, FORESTER..... 535

MISTLETOE SANS SENTIMENT
By CRISTEL HASTINGS..... 536

THE CHRISTMAS TREE
By ALEXANDER BLAIR THAW..... 538

MICHIGAN ELK
By J. H. STEPHENSON..... 539

FOREST INDUSTRY CHARTS CONSERVATION COURSE 540

SUNRISE AND SNOW
By E. R. NORLING..... 542

WITH THE TEXAS FOREST ARMY
By JOHN D. GUTHRIE..... 547

EDITORIAL
The Industrial Forest Conference..... 549

THE FOREST OF BUSSACO
By ALAN F. ARNOLD..... 550

TREES FOR THE PRAIRIES
By CLYDE M. BRUNDY..... 553

A FOREST PAGE FOR BOYS AND GIRLS
Conducted by WAKELIN MCNEEL
Howitzers of the Woods..... 556

FAMOUS TREES EVERY BOY AND GIRL SHOULD KNOW
The "Liberty Tree"..... 557

NORWAY SPRUCE (Tree Series)..... 558

AROUND THE STATES..... 560

ASK THE FORESTER..... 565

AMONG THE CURRENT PUBLICATIONS..... 566

BOOK REVIEWS..... 566

NEW OFFICERS NOMINATED..... 570

"WHO'S WHO" AMONG OUR AUTHORS..... 576

The Editors are glad to receive manuscripts and photographs submitted for publication, but they do so only with the understanding that they shall not be responsible for loss or injury thereto while in their possession or in transit. All manuscripts and art material should be accompanied by return postage. The Editors are not responsible for views expressed in signed articles Notice of change of address of AMERICAN FORESTS should be received by the fifteenth of any month to affect the mailing of the following month's issue.



"Each day I kept tryst with the sunrise and—oh, the incomparable
magnificence of Nature at break of day!

*O' Glorious beyond compare—
Nature waking at my feet;
Wind swishing through the air,
Dawn to greet.
Breathless—trembling soul laid bare;
Free—Who can defeat
Courage like this, born where
Morning and camp life meet?*

"Other pictures may grow old and fade, but always I shall carry in my
mind the picture of the boy who stood with head thrown back at dew-
drenched dawn, and found inspiration from the Handiwork of God."

DAWN OF A NEW DAY

By ALLEN COOK

Company 487, Civilian Conservation Corps

S HARP, clear, piercingly sweet, the bugle call floats out on the morning air. Suddenly, as if by magic, everything is transformed into a veritable beehive of activity. The Civilian Conservation Corps boys are falling in line. Again the clarion call. Tense faces relax. There is the rhythmical tramp of many feet, and smiling, clear-eyed youth goes marching gaily, yet decorously, toward the mess hall and breakfast.

Mess-kit in hand, I pass by for my portion of the morning menu. The enticing odor of bacon and eggs mingles pleasantly with the scent of moist earth and dew drenched pine.

My eyes blur, and a lump comes into my throat. It's all so clean and fine and wholesome, and yesterday—

"No!" growled the man at the desk, where I had applied for work.

"But, sir!" I implored. "Couldn't—"

At the ferocious glare in his eye my voice trailed off, despairingly.

"No!" bel-lowed the irate—er—well, gentleman. "No! and when I say 'No' I—" But I waited to hear no more. Full of resentment, and half ill with hunger and despair, I beat it.

"Aw, what's the use trying to do anything?" I asked myself, fiercely. "It's always the same old story, 'No!'"

It had been that way ever since the manager of the company I had worked for in Springfield, Illinois, had informed me that, due to the sudden slump in business, my services were no longer needed. That was in April, 1930, and I had started out so confidently to find another job. Southward I headed, always seeking work. But the answer was "No!" At first, suave and polite "No's," then sympathetic ones, and then as business slumped more and more alarmingly—by then I had reached Mobile, Alabama, in my wanderings—stentorian bellows such as the one then ringing in my ears.

"Always 'No!'" I muttered, and some queer mental twist brought the whole vast multitude of those "No's" before my eyes where they paraded crazily. There seemed no end to the strange panorama. It made me dizzy. I staggered. People stared. I felt the penetrating glare of a policeman's eye. I knew I might be arrested; so hastily, and with as much dignity as I in my weakened state could command, I made my way to a side street and mixed in with the dark surging mass of humanity that was scurrying home through the rain drenched dusk. "Home!" I thought of my mother, whose hair was growing whiter and whiter, and whose clothes

looked shabbier and shabbier; of my two small brothers who wore patched trousers and thumbed wistfully through catalogues, wishing for the things other boys had.

Home! It should have been a place of tender memories. Instead, I could not bear to think of it; of the poverty there; the questioning eyes of my loved ones. I could almost hear, "Did you find a job?" I laughed bitterly. A job—that elusive and precious something that had been and was not.

I caught a glimpse of myself in a show-window. Hollow-eyed, dirty, in need of a shave. Could this be I, that once dapper young gentleman who had paraded so grandly down the streets of Springfield?

"The irony of Fate!" I murmured, staring at the disreputable reflection.

Wearily, I turned away. The unmistakable odor of freshly baked bread assailed my nostrils. I stopped and stared. There, displayed so temptingly, were four large golden brown doughnuts. Four for a dime!

Perspiration oozed upon my forehead. "If I only had a dime!" Great engulfing waves of nausea swept over me. I



Allen Cook

Allen Cook, an enrolled member of the Civilian Conservation Corps, has written a remarkable story for *American Forests*. He has bared his transition from a stage of utter desperation to the realm of spiritual contentment in the opportunity afforded by President Roosevelt's Conservation Work Program.

Born in Newburn, Alabama, in 1911, one of seven sons of a railroad foreman, he received a high school education before the failing health of his father forced him to seek work. For two years he made great strides, becoming an advanced mechanic. Then came April, 1930, and the depression. He lost his job. And from that day until the establishment of the Civilian Conservation Corps in the spring of 1933, he became one of that great tide of restless, wandering youth which rolled over the country seeking something that did not exist—work.

Allen Cook's story is here published as submitted and without editing. He has reenrolled for the second six months' period of the C. C. C. and is Post Exchange Steward of Company 487, whose camp is near Bessemer, Alabama. Of him, his Commanding Officer, Harry G. Ren-nagel, writes: "Allen is a fine young man. I have watched this youngster change from the blue of depression to the rosy hue of a chance for the future and I have complete confidence in him."

staggered on, feeling as though I were drowning. My mind fastened on the word, clung tenaciously, and fashioned it into an idea. I'd go out on the docks and let the nice cool waters blot out my misery.

Fighting for equilibrium, and with "If I only had a dime!" drumming in my mind, I started for the lower part of Mobile—and the docks.

I had just reached a particularly dark street corner when I felt a hand laid gently upon my arm, and faintly, as if from a great distance, came the plaintive and familiar whine of the professional hobo.

"Brother," it said, "I'm hungry. Can you spare a dime?"

Thinking it to be some mad delusion, I started on. The grip on my arm tightened, became very real.

"Brother!"—the voice had a more pronounced whine—"I said I'm hungry. Can you spare a dime?"

It was a full minute before I could comprehend. Then as my dazed mind grasped the full significance of this latest irony, I burst into wild uncontrollable laughter.

"A dime!" I mocked, teetering crazily. "Ho, says you—if I only had a dime!"

I was so terrible the poor hobo drew farther into the shadows, murmuring: "Sorry, brother—didn't mean any harm!"

Sobered by the sympathetic apology, I meant to offer one myself. But when I looked he was gone. So, with head down, determined to get it over with as quickly as possible, I moved on until at last I stood on the darkest and most remote corner of the docks. I could hear the quiet lapping of the waters. I stared moodily into the murky depths.

"Kind waters," I murmured, "forget everything—everything." It was so easy. I'd just fall over and—

"Brother," a soft voice whispered in my ear, "don't do it! And here's a dime. I think maybe you need it worse'n I do."

I turned, but could see no one. And yet—"Don't do it!" the impelling voice had said, and in my hand was a dime—slightly moist and grimy, but nevertheless a whole blessed dime. Something wet splashed upon my hands. I looked up to see the stars shining and the moon out. Suddenly I realized I was crying. Great racking sobs convulsed me. When, at last, I could cry no more, I summoned what strength I could and, feeling very humble and penitent, I made my way back through the almost deserted streets to the little bakery beyond the corner. By the kindness of Providence it was open, and nothing before nor since has tasted quite so delicious as those four enormous doughnuts. With each delectable mouthful, I breathed a silent prayer for my good Samaritan, the unknown hobo.

For a while after the unforgettable experience on the Mobile docks I felt subdued and chastened. But it is hard to patiently endure poverty when one is young. So before long I was on the road again. I went from the wheatfields of Kansas to the Oklahoma oilfields, and everywhere the black pall of depression hung like the shadow of death. There seemed no escaping it. Like some terrible and greedy monster it had appeared on the face of the earth, devouring jobs and creating havoc in the business world. The army of unemployed grew amazingly, until no matter where one went, on freight trains, on the roads, everywhere, one met hordes and hordes of the unemployed. Most of them were young, too. Just boys, like myself—boys with gaunt, grime streaked faces, and tired old eyes. Seeking, seeking. One heard whispered conversations, nefarious schemes outlined. Desperate youth, resorting to daring to alter a situation that seemed hopeless.

I don't know whether any of those schemes materialized, or whether any of those mad plans were ever carried out, but if you had been in the place of those boys perhaps you would have been a little mad too. It is in just such cases of desperation that criminals are born. I know, because I've

been almost that desperate myself. Sometimes I wake up now and shudder when I think of what might have been.

But that's all over with now. Thanks to our wonderful new President, there has dawned a new day. That whole vast army of unemployed youth has become, almost overnight, the Civilian Conservation Corps. The bitterly disillusioned boy of yesterday, seething with hatred of God and man, is no more. Today he is something his mother can be proud of.

Don't misunderstand, and think this transformation really occurred overnight. That is just my way of putting it. Actually, it has taken months to straighten out the queer mental kinks and the spirit of rebellion brought on by the depression and rampant among the boys of my generation. I know that when I joined the Civilian Conservation Corps I was a veritable epitome of hopelessness and despair.

Now, every time I look back upon those first few weeks of camp life, I marvel anew at the wealth of understanding and patience my commanding officer must have possessed. Otherwise I am quite sure he would have wrung my neck. I wasn't bad, not in the sense that one thinks of a degenerate. It was just that my viewpoint of life had become so distorted that I was looking oblique-eyed at everything. Life and law were all wrong to me, and there seemed to be no such thing as justice. Having my sense of values all mixed up had turned me from a normal, well bred young American into a belligerent sort of cuss.

But even the most wayward spirit responds to kindness and sympathy and understanding. And, too, there is something about good food, good clothes, and clean fresh air that can dispel even the blackest of moods. So, before I quite realized what was happening I was responding wholeheartedly to this new mode of living. As I say, I don't know just when it happened, but all at once I became conscious of the glorious opportunity before me. Why, here was not only a chance to help support my family, but to do something bigger—to help on to success this part of the President's daring new plan to down Old Man Depression.

Patriotism groaned in my soul, turned, and woke up. Bits of "My Country 'Tis of Thee" floated in my mind. Yes, sir! You bet I'd do my part toward corralling this old depression, and when he'd been caught I wanted to be in at the "hog tying."

The C.C.C. became a kind of game—one that kept challenging the best that was in me. It caused me to take stock of my shortcomings and to set a standard of mental and physical perfection; one that I believed would enable me to keep up my end of the struggle were I to live up to it. I became very earnest about my work. I'm sure I made many terrible blunders, but I strove for perfection whether I attained it or not. My diligence was noticed and I was rewarded or rather, promoted. The honor of being taken from the ranks and appointed a squad leader came as a complete surprise to me. There were so many boys in my company who seemed in every way superior to me that I had imagined that approbation in the eye of my captain was about all I'd ever earn. I was so pleased over being selected that I went right out and worked like a Trojan, although I knew I was to merely supervise. But somehow there is something very soul-satisfying about good honest-to-God hard labor, especially when you've ached for something to do for three long years. So, somehow, I just couldn't resist the temptation to lend the boys a hand. The fellows under me must have felt pretty much as I did, because we were repeatedly commended for the excellency of our work.

I was proud of my boys. I admired and respected them and I wanted them to have the same feeling toward me. I began to wonder if that was possible, and after taking stock of the virtues I didn't possess, I decided that it prob-

ably wasn't. For one thing I had a temper that could be rather nasty at times, and that long hopeless tramp from coast to coast looking for the job I never found hadn't improved it any. I felt ashamed when I thought of past and recent outbursts, and I determined right there to start practicing self control. "To be cool, calm, poised, under any and all circumstances" became my motto.

I was right in the midst of this great moral struggle when I was again promoted. This time it was to platoon leader, literally foreman of the company. This meteoric rise might have turned the heads of some boys but, significant of the great change the return to clean, sane living had wrought in me, I felt humble rather than arrogant. Somehow I couldn't quite believe I deserved all this. I felt my inadequacy keenly. I realized that we were soon to be transferred to special work in the forest and that, in my capacity as overseer, I would need to know a great many things—things I had probably forgotten. For instance, I would need to know all about pipe fitting and how to figure lumber in terms of feet.

As the time for our departure drew nearer I spent more and more time reviewing half forgotten problems. To my surprise it wasn't as hard as I had imagined.

The great moving day arrived at last. Bag and baggage we were dumped into the forest. Our camp site was a lovely bit of woodland and we were delighted, but when we looked around and saw the amount of work to be done before we could live in it, we groaned inwardly. However, we were too well disciplined to rebel at the prospect of even so strenuous an undertaking, so with heads up and shoulders squared we grabbed our axes and marched in to clean up the place. By night we had a temporary kitchen up, and our tents staked. That day I learned a new lesson in mental as well as physical endurance, and when night came after what seemed an interminable length of time, I was so tired I just fell over in my bunk and



"It is almost night and my soul is reaching out toward the hills—the hills, grown beautiful and enchanted in the deepening twilight. My eyes stray up until they rest upon the last green peak—the last tall pine etched against the afterglow of the setting sun . . . it was like Heaven,—when I remembered the boy who had wearily tramped the streets and sought death in the bitterness of despair."

slept like a log until sunrise. If I remember correctly, it was just peeping over the horizon when I was up mapping out plans for the day.

"The mess hall should go here—um—now let's see. The kitchen goes here and the post exchange over there."

Each morning I kept tryst with the sunrise. The cool morning air acted as a stimulus upon mind and body. With each deep draught new life just seemed to pour into me. The transcendent feeling it gave me is indescribable.

I wish I could tell you how I felt about it, and, Oh! how I wish I had the power to describe to you the incomparable magnificence of Nature at break of day.

O' Glorious beyond compare—
Nature waking at my feet;
Wind swishing through the air,
Dawn to greet.
Breathless—trembling soul laid bare;
Free—Who can defeat
Courage like this, born where
Morning and camp life meet?

Other pictures may grow old and fade, but always I shall carry in my mind the picture of the boy who stood

It is almost night and my soul is reaching out toward the hills—the hills, grown beautiful and enchanted in the deepening twilight. My eyes stray up, up, until they rest upon the last green peak—the last tall pine etched against the afterglow of the setting sun. I watch, as slowly it fades against the evening sky, and stand with an aching heart while the night closes in around me. Silent, lost in a flood of poignant memories—memories of the boy who wearily tramped the streets and sought death in the bitterness of despair. There was no peace in his storm-tossed soul, and happiness, to him, was just something that was 'way up out of reach somewhere beyond the stars.

"Mooning?" A pleasant voice breaks in upon the sad



In the woods we began to realize what "conservation" really means, as we learned to build trails for many uses, and the strenuous experience drove into each of us new mental as well as physical endurance.

with head thrown back at dew-drenched dawn and found inspiration from the handiwork of God.

Oh, the C.C.C. has indeed done many wonderful things for me. It has regenerated me mentally, physically, and spiritually. It has given me practical knowledge and, at the same time, taught me to appreciate the good things of life. I have learned how to prevent and fight fires, something about carpenter work, and all there is to know about camp life. And since being in the post exchange, I have learned how to keep books, how to be deft and accurate in handling money, and to cultivate a personality that is always pleasing to the public. And now let me tell you about the most wonderful lesson of all. I have at last learned to appreciate what Thoreau calls "The beneficence of Nature." Life in the woods has given me health and mental strength and something infinitely more precious, my faith in God. Yesterday I was drifting in chaos, and today—

retrospect. I look up to behold the smiling face of my beloved captain.

"N—no, sir," I stammer, wiping the back of my hand across eyes that I know are suspiciously moist. "I—I'm just thinking—how good and how wonderful all this is," sweeping out my hand to include the camp, the hills, the trees, the stars, the flowers. "After some things this is like—Heaven."

And it is, too. I know the heavenly exhilaration that comes from good clothes, good food, and clean hard muscle; from dawn on the hills and a flaming sunset. I know the divine serenity of soul that comes from a quiet well ordered life; from the silence of night, the whisper of wind, and the perfume of dew-drenched flowers.

Peace? Ah, I have found it at last. And happiness—well, happiness is not something 'way beyond reach. It's here, right here, not beyond but beneath the stars.



Robert Y. Stuart, Forester

AN APPRECIATION

BY THE death on October 23 of Robert Y. Stuart, Chief of the United States Forest Service, forestry and the public service lost a leader of rare character and ability. As head of federal forestry, Stuart typified all that is honorable and straightforward and a devotion to public duty that neither hours of labor nor magnitude of problems could deflect. As a man and forester, in field or in office, he epitomized friendship, reliability and moral integrity. Everywhere he inspired confidence.

His leadership of the Forest Service was a leadership of poise, breadth and competence. Courage, devotion, quiet self-confidence and simplicity were his outstanding characteristics. He was neither submerged in detail nor insufficiently acquainted with all that he needed to know. Never hurried or crowded, he was conspicuously accessible and ready to take up with free and open mind, a level judgment and at the end with a clear and unswerving decision, new problems of policy and administration as they arose.

His course was neither that of the opportunist nor that of the impractical visionary. It was a course that was far-sighted, firmly pursued and well planned. The respect, trust and loyalty of those under him flowed naturally to him, and his sympathetic qualities of leadership enabled him to unite them in effective team work for the accomplishment of the ends sought.

Stuart's life from the time he reached manhood was given unselfishly and wholeheartedly to forestry. Born in Pennsylvania in 1883, he was graduated from the Yale Forest School in 1906. The next six years he spent in the West as a member of the Forest Service engaged in National Forest activities. Early recognition of his abilities and his trustworthiness rapidly advanced him to the position of Assistant District Forester under William B. Greeley, who was then District Forester of the Northern Rocky Mountain District. In 1912, Stuart was transferred to the Washington office as Assistant Chief of the Branch of Silviculture, where he remained until the entrance of the United States into the World War, when he became a commissioned Captain in the 10th Forest Engineers and went over-seas in September, 1917.

In war no less than in peace, Stuart's ability was recognized. Promoted to Major in 1918, he became Commanding Officer of the 5th Battalion of the 20th Forest Engineers in 1919 and District Commander of the forest troops in the Gien District, France. For his services with the American Expeditionary Forces he received a citation from General Pershing. Following the war and upon his return to the United States, he was called in 1920 by Gifford Pinchot, then Conservation Commissioner of Pennsylvania, to be his Dep-

uty Commissioner. When Mr. Pinchot was elected Governor, Stuart was appointed to the newly created position of Secretary of Forests and Waters with a seat in the Governor's Cabinet. He served also as a member of the Tri-State Delaware River Treaty Commission, and in 1926 was Chairman of the Pennsylvania Sesquicentennial Committee.

At the expiration of Governor Pinchot's term of office, Stuart reentered the United States Forest Service as Assistant Forester in charge of the Branch of Public Relations. When in the spring of 1928 William B. Greeley resigned as Chief Forester, Stuart was selected to take his place and became head of the Forest Service on May 1 of that year.

Internally, the Forest Service during the five years that Stuart led it underwent no spectacular changes. Under his

wise and competent guidance it continued the steady progress which characterized its history through the periods of his predecessors, Pinchot, Graves and Greeley.

It was definitely a part of Stuart's policy as head of the Service to foster a spirit of initiative, self-development, and ability to meet the growing problems and opportunities in the broad field of forestry. In the too short period of his incumbency he clearly proved himself an administrator worthy to be ranked with his distinguished predecessors.

His term of office as Chief Forester was predominantly one of struggle against adverse conditions on the one hand and new and demanding problems on the other hand. Upon him fell the full brunt of retrenchment responsibilities imposed upon the Forest Service by the depression and the demands of governmental economy. He had to battle hard to maintain the integrity of the Service and its work under an administration not altogether sympathetic with forestry and one disposed to emphasize state rather than federal authority in the handling

of land resources. With the change of administration and the inauguration of President Roosevelt, these adverse conditions were somewhat relieved, but tasks of new magnitude crowded fast one upon the other. As leader of the Forest Service, Stuart had to meet the demands of the Civilian Conservation Corps, the unprecedented program of forest land acquisition, and the expenditure of \$40,000,000 for road, trail and improvement work on the National Forests.

To these calls for added service, he responded eagerly, unselfishly and tirelessly. Day and night he labored, sacrificing strength and health that forestry might play its full part in alleviating the sufferings of his fellowmen at war with hunger and unemployment. That his work was well done and the leadership given him well placed the record abundantly speaks.



Robert Y. Stuart
1883 — 1933



E. L. Crandall

MISTLETOE SANS SENTIMENT

By CRISTEL HASTINGS

THE woodlands of the world are host to mistletoe, that insidious forest growth which, together with some of its four hundred odd species or relations, is found, more or less, wherever trees are perfect and plentiful.

Nor is this green and growing parasite at all particular regarding the character of its host. Mistletoe has been found on fruit trees and on conifers, on deciduous trees and on evergreens, until it has become comparatively common. It is one of the epidemic ills that have beset forests in America and in European countries.

A measure of sentiment attaches itself to mistletoe in much the same manner that mistletoe attaches itself to trees. Unlike the latter, however, mistletoe has flourished on sentiment and long ago became the peculiar symbol of the Yuletide and its merriment the world over. Time was when European orchards were greatly harassed by this troublous parasite—chiefly the apple trees of England. Less frequently it was found on the oaks of that country. When mistletoe was found on England's oaks, the Druids—for some baffling reason of obscure sentiment—held the strange plant or parasite in special veneration. All sorts of odd beliefs and sentiments have clung to it through the ages, even unto the present day. Always it has been considered the ceremonial plant among the nations of Europe. Our own Christmas custom of osculation beneath a sprig of mistletoe has its genesis in a Norse legend. Oddly enough, England today must buy her holiday mistletoe from Normandy, where the para-

site has taken possession of ancient apple trees, affording the harassed orchardist, perhaps, even greater returns for his unwilling harvest than were he to struggle against this persistent plant pest in a futile effort to retain his apple crop.

The poplars near Vienna are so infested with mistletoe that gradually all semblance to poplars has been forfeited by these once beautiful trees. Although comparatively rare in the greenery shops during the festive season—and, perhaps

for its sentimental legend, rather expensive—mistletoe is all too common in American forests, especially in the western United States where the ponderosa pine predominates and where the live oak adorns the hills and valleys.

In the great wide valleys of the San Joaquin and Sacramento Rivers in California thousands of huge oaks appear as one solid mass of dark green. On close inspection this mass of greenery proves to be nothing more or less than clumps of mistletoe. It hangs in great round clumps from the very trees that give it sustenance, eventually paying its debt to its host by stunting and greatly retarding the growth of the latter. Oregon, too, has its share of mistletoe infestation, but quite often on this last frontier of the great West the farmer reaps a harvest that is equal to that of the thrifty Normandy orchardist. Oregon farmers have learned it is doubly profitable to wait with wood cutting until near the Christmas season when the harvest of mistletoe on the infested oaks destined for the winter supply of fire wood may be gathered from the cut trees and



In the beautiful San Joaquin and Sacramento Valleys of California thousands of huge oaks are festooned with great clumps of the stunting parasite — and there is no sentiment there!

readily marketed to advantage among the floral shops of nearby cities. Cutting the infested trees has been found, thus far, the only effective method by which at least partial eradication may be accomplished.

Unlike certain other forest growths, there is no lawful measure prohibiting the gathering of mistletoe. Rather, a bounty rightfully could be provided for its reduction in our woodlands. Vast acreage of oak and pine has been stunted and ruined, more or less, by this nomadic parasite. Its presence remains somewhat of a mystery except that, like most infestations, it gains a foothold before its presence is recognized. Birds are generally accredited with bearing its tiny seed berries from tree to tree, where the seeds find lodgment among the branches, there to grow and thrive. This seems the accepted explanation for its presence among the huge fraternity of oaks and a host of other trees in the western States. The wind may be another agency of travel for mistletoe seeds, and, no doubt, squirrels and wood mice do their bit in transporting the seed berries from one tree to another in acreage adjacent to infested areas. Unfortunately, seed production of the mistletoe is amazingly prolific, and it is not an uncommon sight to see an oak or a pine literally covered with dark green clumps of the spongy parasite growth. Particularly is it a menace to newer, younger growth. Even mature trees, while able longer to withstand and survive the ravages of infestation, eventually assume a discouraged attitude, seemingly carrying on only a half-hearted battle against this vampirish plant pest. Mistle-



Stripped of its sentiment, mistletoe is just a parasite—one of the ills of American Forests. This shows mistletoe (*Razoumofskya americana*) with ripe berries, on a branch of Lodgepole Pine.

Photograph by
Dr. G. G. Hedgcock



Photograph by Dr. G. G. Hedgcock

Mistletoe (*Phoradendron juniperinum, libocedri*) on Incense Cedar. The hanging bushes of the parasite have completely possessed the host tree.

toe multiplies rapidly and its habits are indiscriminate. It attacks trees of all ages. Even where a strong young tree manages to withstand the onslaught, its growth will be retarded and the tree will, as it matures under difficulties, assume a crippled and grotesque formation utterly unlike the thing of beauty it started out to be. Resultant distortions are common among conifers of the Pacific Coast, most weird of these being, perhaps, the so-called "witches' brooms" which flaunt their broom-like formations from the crowns of yellow pines and Douglas firs along western American states. Control and eradication of mistletoe parasite on the western yellow pine has become, according to Dr. E. P. Meinecke, Bureau of Plant Industry, one of the most baffling problems in North American pathology. Timber sales by the Forest Service, through which the most heavily infested trees may be removed from the forest and sold as wood, offer partial solution of the problem, but wholesale cutting is inadvisable because of the magnitude of such undertaking. However, emulating the custom of the thrifty Oregon farmer, it has been found effective to remove the most heavily infested trees, not for monetary gain, as in case of the farmer, but for the purpose of removing and eliminating the deepest source of contagion from among younger growths that stand in danger, more or less.

The most familiar to us of the classified species of mistletoe is, perhaps, the *Phoradendron flavescens*. This species bears thick, spongy, greenish-golden leaves. At Christmas time it bears clusters of white, wax-like, blistery berries that look for all the world like tiny seed pearls. The greater majority of the *Loranthaceae*—the mistletoe family—are, fortunately, more common to the tropics. A few virulent specimens, a half dozen or so, are running wild in American woodlands. All efforts to check the growth and spread of the insidious parasite have proven futile thus far. No remedy seems effective except the drastic last-resort measure of burning the tree on which the mistletoe has settled and

taken hold. Such a course, however, would only add increased danger to the surrounding forest, the result of which would be a devastated skyline in many regions far more unlovely than one festooned with the dark green mistletoe clumps.

Although in England it thrived on oaks, later deserting these hosts for more scattered habitation on maples, hawthorns, poplars, ash, laurels, limes, and even the domestic apple trees mistletoe attacks in wholesale abundance not only the oak in America, but it selects conifers as well. The great Douglas fir of the Pacific Northwest has become its victim, as has also the lodgepole pine farther south along the coast of the Pacific, the yellow pine and even the Western larch.

The Southwest, too, has its share of infestation, for there the lovely cottonwoods have become its prey, as have also the willows. Even the chestnut has not escaped, nor has the sycamore been able to withstand its ravages. It seems that mistletoe is no respecter of hosts. Varieties differ on different trees and in different localities. A few

dwarf varieties are particularly a menace because of the complete foothold they are able to secure on evergreen trees before the parasite growth is even detected.

One variety, *Razoumofskya cryptopoda*, bears greenish berries. This species makes its home chiefly on the yellow pine. Another, *Razoumofskyia douglasi*, as its name implies, attacks the Douglas fir. It takes but a few years for a stately pine or fir plainly to show the effects of the sap-draining tentacles of the mistletoe, to stand, finally, drooping limbs stunted and half bare, vastly different from the glorious great evergreen it should have been, its weird clumps of mistletoe aloft proclaiming another conquest to the winds that fly. And yet, in spite of its vampirish habits and the ever-hungry tentacles that fasten themselves relentlessly on helpless trees, the lure of sentiment persists in clinging to mistletoe everywhere except in the hearts of harassed owners of stands of timber who may be forced to witness the slow but sure crippling of certain valuable forests that stencil their "green mansions" along the notched horizons of the great outdoors.

THE CHRISTMAS TREE

By ALEXANDER BLAIR THAW

*Wandering tribes now roam
The hills of Lebanon,
Knowing not house nor home;
Gone the great cedars, gone
That temple built of them
Once, in Jerusalem.*

*Once, through the groves of Greece,
Down from the Delphic slope,
Rang their great songs of peace,
Filled with a burning hope,
Bearing strange prophecy
Of mortal liberty.*

*Once our forefathers heard,
Under the sacred oak,
Some strangely muttered word,
Whispered by tongues that spoke
Forth from the Druid tree,
Darkly, of things to be.*

*Though to our senseless ears
The leaves no longer sing,
Yet, through the lapse of years,
A still small voice doth bring
Peace upon earth again,
And freedom to all men.*

*Set on a little hill,
Over a world that grieves,
One living tree shall still
Scatter its healing leaves,
Gathered for our distress
Out of the wilderness.*

*Seeking that healing power,
The nations all, once more
In this their darkest hour,
Stricken as ne'er before,
Yearn now, and not in vain,
To hear that voice again.*



*Out of the desert wild
Comes, with a heavenly voice,
News of a new-born child,
Bidding the world rejoice,
Bringing all those who roam
Back to each earthly home.*

*Now all the fruitful earth
With heaven is reconciled,
Since, on each sacred hearth,
And in her forests wild
Under the open skies,
Songs of pure love arise.*

*Close by the tree of life
The tree of knowledge grows;
And, through our wars and strife,
Up from the world's deep woes,
Where the dark roots entwine,
Is born the Word divine.*

*Out of much suffering
Still those mute altars rise,
Where perfect love shall bring
Life's willing sacrifice,
And little children bear
Earth's holy promise there.*

*Now, through the least of these,
Heaven on earth is come;
Now the dark forest trees
Speak, and no more are dumb,
And a child's heart shall be
Fruit of this fertile tree.*

*Hark, in this burning bush,
Brought from the silent grove,
Out of that holy hush
Wakens the word of love,
Which o'er the world, new-born
Hovers, this happy morn.*

MICHIGAN ELK

By J. H. STEPHENSON

HERE is a much discussed question at the present time as to whether depleted game covers should or should not be stocked with exotic species which may or may not be adapted to the cover conditions and climate, or whether it might not be safer to stick to the old and tried methods of conservation practice such as curtailment of bag limits, shortened or closed seasons, and artificial propagation. Each method or plan has its quota of followers, and in view of the fact that there is little probability of the matter being amicably settled in the near future, a resume of a more or less successful experiment in the transplanting or restocking of native species may be of interest to hunters, sportsmen and nature lovers.

It may not be generally known that the elk is indigenous to Michigan. While no information is available as to when the last elk disappeared from the State, the records of its early presence are authentic. Seton includes all of the Lower Peninsula of Michigan in his map of the primitive range of the elk and quotes La Salle (1632) as follows: "The country between the lakes of the Illinois (Lake Michigan) and Lake Erie, for the space of 100 to 120 leagues * * *. There are also some dry prairies and some very good lands filled with an incredible number of bears, stags (elk), roes (Virginia deer), and wild turkeys."

Further proof is evidenced by the occasional finding of horns or skeletons in lake bottoms and bogs in some sections of the State.

About sixteen years ago the State Game Department of Michigan obtained a carload of some twenty-eight elk from the Jackson Hole country, in Wyoming, and placed them in an enclosure within the Houghton Lake State Forest, in Roscommon County. This enclosure contained about one hundred and sixty acres of high land and coniferous swamp. The upland cover is mainly poplar and oak, rather poorly stocked and of questionable suitability as elk range. The swamp land did not produce much in the way of feed and may be considered as providing little more than cover and shelter. Whether from confinement, unsuitable food, poaching, or a combination of causes, they did not thrive; and in

1918 the remainder of the herd was captured, with the exception of two bulls and two cows which could not be caught, and released in what is generally known as the Turtle Lake Country, in Alpena County. This herd, consisting of eighteen animals, seemed to hold their own for a few years, showing little, if any, increase, then began to decrease in number until at present there is but an occasional report of animals or tracks seen.

The topography of the Turtle Lake country is generally rolling to hilly, with some fair sized coniferous swamps and with plenty of water available. The cover of the upland is mainly poplar, oak, soft maple, and jack pine, and there is also an abundance of shrubbery and grass. It would seem that this combination of cover and feed was quite satisfactory, and compares favorably with ranges upon which elk have apparently thrived. It is generally assumed that poach-

ing is the cause of the almost total disappearance of this herd. In several instances evidence of the slaughter of these animals was found but in no case was a conviction secured. It can be readily understood that there is small chance of reproduction and increase among animals of this size unless they are left severely alone.

Of the four animals left at the Houghton Lake State Forest, but one remains.

These animals were liberated from the enclosure at the time the rest of the herd were captured, and disappeared in the same manner—supposedly—as the Turtle Lake herd.

Another attempt to establish an elk herd at Houghton Lake Forest is being made with a herd which was presented to the state in October, 1932, by Mr. Carl E. Schmidt, of Greenbush, Michigan. This herd consisted of ten cows, two old bulls, one yearling bull, two bull calves, and one female calf. Three of the cows were lost in handling, and one of the bull calves, a weakling, was destroyed. The remaining animals were removed to the Houghton Lake State Forest, in Roscommon County. Six additional bulls, donated by the Detroit Zoological Park at Royal Oak, Michigan, were liberated with the Schmidt herd.

During the following open deer hunting season, in November, 1932, three of the bulls (*Continuing on page 571*)



A band of elk in the Pigeon River country of Michigan.

FOREST INDUSTRY CHARTS CONSERVATION COURSE

History Making Conference in Washington Brings Together Timber Owners and Foresters in Joint Effort to End Destructive Lumbering and to Perpetuate Forest Resources

INITIAL steps in charting a conservation course for the forest industries of the United States were taken in Washington last month when representatives of the industries, the Government and public conservation organizations met in a three-day conference on October 24, 25, and 26. The conference was called by Secretary of Agriculture, Henry A. Wallace, at the request of the forest industries and pursuant to Article 10 of the Lumber Code of Fair Competition which calls for prompt working out, by the industry and public agencies, of practical measures of forest conservation. The October conference was the first of two through which it is contemplated the conservation program will be brought into definite form. The second conference is scheduled for December 14 and 15.

In opening the meeting on October 24, Secretary Wallace defined the objectives of the conferees: (1) To develop and agree upon principles to guide Divisional agencies in working out specifications for woods practices which will result in the conservation and sustained production of forest resources; (2) to develop ways and means of formulating, applying and enforcing such requirements by the Divisional agencies in cooperation with the appropriate federal and state authorities, and (3) to discuss the ways and means in which the public can help and to determine to what extent and under what circumstances industrial action may be contingent upon public cooperation.

"This is the first time," said Secretary Wallace, "that the lumber and timber products industries as a group have committed themselves to a policy of conservation and sustained production of their basic resource, the forest. This commitment is evidence of the crystallization of a new attitude which has gradually been growing up within the industries. It constitutes a major step in the evolution of American forest industries. To the extent that it can be carried out, a migratory industry, based on speculative exploitation of timber which it did not grow, will henceforth

be replaced by a permanent industry, based on timber that is grown according to definite plans."

Upon conclusion of his address, Secretary Wallace turned the meeting over to Henry S. Graves, Dean of the Yale Forest School, who acted as permanent chairman. Approximately seventy-five delegates widely representative of the wood industries and forest conservation agencies participated in the meeting. Organization representation included the lumber industry with twenty-seven delegates, the pulp and paper industry with five delegates, the naval stores industry with one delegate, the national Grange and the American Farm Bureau Federation with two delegates

each, the Farmers' Union with one delegate, The American Forestry Association with seven delegates, the Society of American Foresters with three delegates, the Federal Forest Service with eleven delegates, the Association of State Foresters with four delegates, the American Tree Association with two delegates, the Indian Timber Service, the Farm Extension Service and the Recovery Administration with one delegate each. In addition, a number of unofficial representatives were present and were permitted unlimited freedom in entering into the discussions.

The conference last month was in the nature of a preliminary or

initial discussion of policies and measures which should be incorporated in the program later to be adopted and made a part of the Forest Products Industries Code of Fair Competition. The meeting was open to proposals not only from the Industry and the Government but from individuals and public conservation organizations. It was made a rule of the conference that no proposal was to be thrown out and that all were to receive consideration. To this end a series of committees were appointed to deal with proposals bearing upon definite subjects, to hold open hearings on the proposals referred to them, and to serve through the concluding conference in December. These committees, with their chairmen, are: *Committee on Forest Prac-*

MAIN PROPOSALS

For Placing Forest Industries on Conservation Road

Action by Industry—

Adoption of logging methods that will preserve immature trees for future growth and maintain the productivity of the land.—Acceptance of standards of selective or partial cutting of merchantable timber that will assure sustained industrial operation.—Prevention of damage by fire during and following lumbering and substantial enlargement of cooperative fire protective systems.—Organization of forest products industry on sustained yield basis.—Inclusion of farm woodlands in operation of Conservation Code.

Action by Public Agencies—

Adequate cooperation by states and Federal Government in protecting all forest properties from fire, insects and disease.—Expansion and acceleration of acquisition of forest lands for public forests as aid in stabilizing forest ownership.—Speedy reform by states of present ad valorem methods of taxing forest properties.—Establishment of an appropriate Federal agency to extend forest credits as an aid to continuous forest productivity by industry.—Continuance of forest research on scale authorized by the McNary-McSweeney Act.

tice, Chairman, C. C. Sheppard, President of the National Lumber Manufacturers Association; *Committee on Public Timber Disposal and Public Acquisition*, Chairman, Ovid Butler, Executive Secretary of The American Forestry Association; *Committee on Forest Taxation and Forest Credits*, Chairman, George F. Jewett, Potlatch Forests, Inc.; *Committee on Public Cooperative Expenditure*, Chairman, William G. Howard, State Forester of New York; *Committee on Farm Timberland*, Chairman, John Simpson, Farmers' Union; *Committee on Emergency Timber Salvage*, Chairman, A. R. Watzek, Crossett-Watzek-Gates Company.

On the final day of the conference these committees reported back to the general meeting and their reports were open to discussion before adoption. Immediately following the conference the recommendations of the committees, together with all proposals submitted to them, were sent to the regional divisions of the Lumber Code Authority to be analyzed and reported on in the light of local regional conditions and feasibility of application. The recommendations of the regional divisions, together with those of the conference committees, will form the basis upon which definite policies and standards of woods practice will be drafted when the conference reconvenes on December 14. The more important features of the committee reports as adopted by the conference and submitted to the regional divisions for consideration are as follows:

Committee on Forest Practice. The Committee had before it ten proposals bearing upon forest practices. Of these, that of the Industry itself and that of the Forest Service were considered most complete. The aims of both proposals, the Committee reported, were similar and could be harmonized if time permitted. The Committee, therefore, recommended that both proposals be submitted to the regional divisions and that final conciliation be left to the December session of the conference. The two proposals in question have the common purpose of establishing practices in woods operations that will safeguard young timber from injury in logging, will prevent unnecessary damage to trees left in the woods and will promote regeneration of the forests after lumbering. They call for the leaving where feasible of standing trees of intermediate size which fall in the class of marginal or submarginal trees in point of profitable removal, as a basis for sustained operations of the industry. They further call for better measures of protection of forests, both public and private, against fire, insects and disease. This proposal would obligate both the public and the industry to a substantial enlargement of activities and appropriations under the cooperative fire protection section of the Clarke-McNary Act.

The proposal of the Industry relating to selective cutting would commit it to a determination by regions of "the extent to which merchantable sizes of timber may wisely be left as part of the forest growing stock and/or as an aid in reseedling, commonly understood as 'selective logging.'

Upon satisfactory determination of such conditions the industry will promptly establish standards of practice looking to the attainment of this objective. Regarding sustained yield the industry's proposal reiterated its commitment to that principle as a desirable objective in all forest regions, and declared its recognition of the desirability of attaining a proper balance between forest growth and production by forest regions. Cooperation with other agencies concerned in attaining this objective is pledged.

The proposals of the Forest Service are based on the premise that in order to conserve forest resources and bring about sustained production of forest resources "only those cutting methods and logging practices should be employed which will preserve the productivity of the forest, insure satisfactory regrowth and leave enough growing timber to permit continuous sustained industry."

The more specific proposals call for maintenance of soil and site conditions favorable to forest growth, reduction of fire hazards, elimination of unnecessary damage to forest growth in logging and the leaving of from ten to thirty per cent of the merchantable forest to yield a commercial cutting at reasonable intervals. Annual cost of proper fire protection of forest lands outside the National Forests is estimated at \$20,000,000. It proposes that the federal contribution now limited to \$2,500,000 annually under the Clarke-McNary Act be increased to \$5,000,000, or one-fourth the total cost. The remaining \$15,000,000 would

IN MEMORY OF MAJOR STUART

Ever conscious of the absence of Major Robert Y. Stuart, Chief of the United States Forest Service, who had been counted on to take a leading part in the meeting but whose sudden death occurred on October 23, the conference by resolution paid him the following tribute:

"The members of the Forest Conservation Conference, inexpressibly shocked at the untimely death of their distinguished friend and co-worker, Major Robert Y. Stuart, wish to record at this time their deep sense of loss in his passing and their sincere appreciation of the sterling qualities that during his many years in the service of forestry have called forth the respect and esteem of all who knew him. In view of the unselfish service of Major Stuart through his many years, his great contribution to the advancement of forestry, his unswerving faithfulness to duty, and the high standard of personal integrity in public office which he ever upheld, it may be truly said that he devoted his life to the service of his country."

be a responsibility of the states and private industry to meet.

In the discussion of the final determination and enforcement of woods practice, the committee found a difference of opinion on the point of placing representatives of the Federal Government on the regional boards. The proposal of the industry would place this responsibility upon the several Code divisions of the forest industry, drawing upon the advisory counsel of federal and state forest agencies. Some members of the Committee, on the other hand, held there should be a representative of the Federal Government on each regional board who would be responsible to the Central Recovery Act Authority and the President, and who would serve as a technical advisor to the local boards, and a connecting link between local and central authority. This question was left undetermined as a point more properly to be taken up at the December conference.

Committee on Public Timber Disposal and Acquisition. After consideration of a number of proposals on the policy of public timber disposal which should be written into the conservation program, the Committee endorsed a proposal (a) that disposal of federal and state timber to be of highest public use should contribute to sustained regional production including the participation therein of private forest lands; (b) public timber disposal should be governed by a policy of extreme conservation and should be withheld from further unnecessary competition in unwilling markets during times of (Continuing on page 572)



Photograph by J. Yolo

Rainier—the Mountain—was always a source of wonder and many Indian legends are built around it. In the morning light, the shadow of a hawk-faced Indian is cast across its field of dazzling white.

SUNRISE AND SNOW

By E. R. NORLING

A HEAVY sky crowded against my studio window. It was no day for work, no day even for dreams; just a drab, wet, western Washington winter day. And all hope of sunshine and color and inspiration was smothered under that blanket of unbroken cloud. The sudden ringing of my telephone bell aroused me from a rapidly growing mood of rebellion.

"It's Joe Yolo talking," came a hearty voice over the wire. "Remember me?—the cameraman? Yes? Well I have an idea."

"What is it, Joe?" I asked.

"Sunrise Park on Mount Rainier!" he answered with all the enthusiasm that was naturally his. "I'm going up there to make some movies, to see nature in the raw—snow, sleet, storm. Will you join me? It's over six thousand feet up to

the camp, and you'll see real beauty. You can paint old Rainier as she has never before sat for an artist."

Would I? With good old Joe? I awaited his arrival impatiently.

He came with the evening, and in a moment a new map of Rainier National Park was spread on the table between us. This prosaic government document showed a plateau marked "Sunrise Park" lying three thousand feet above another area labelled "Emmons Glacier." A pattern of contour lines writhed its way across the plateau, and a square black dot indicated a ranger station. There was nothing to say "Here lies another world, beautiful beyond superlatives."

Nature so placed this plateau that it receives from her a three-fold benevolence: There is the mountain itself, silent and serene, its crater sealed with snow; there is Little Ta-

homa, a towering pinnacle of rock, clinging to the old Chief like an unruly papoose. This little Tahoma has for ages resisted the relentless pressure-ice from above, splitting the flow into two mighty glaciers, which move ever downward, dissipating in the valleys below, melting into milky rivers that carry on to their ultimate goal, the ocean. There is Emmons Glacier, a meandering blaze of white, emerging from eternal snows, dragging and twisting its great bulk downward between the impregnable shoulders of the mountain until its whiteness is softened into blues and purples thousands of feet below the rim of the plateau.

"Here's our trail," Joe was saying. "We'll drive the seventy-nine miles from Seattle to the Park entrance, but from there on it will be snowshoes and skis."

Orville Borgersen, a member of the Mountaineers Club, made up the third member of the party. He was a tall, rangy, likable fellow, an expert on skis and navigation in snow. We loaded the car with snowshoes, skis and packs, the packs containing motion picture cameras, a kit of water colors and our winter clothing—sixty pounds of weight for

each of us to carry. Hours later when the frozen packstraps were chewing into tender shoulders we were sincerely grateful to the park superintendent for granting our expedition the facilities of the ranger stations so that our blankets and two weeks' supply of grub were not included in the burden.

We drove through miles of open country, into the little town of Enumclaw and on toward the snow of White River Valley. There the open country was lost in the foothills which crowded down from the Cascades, ragged hills piebald with timber, and bleak stump land—graveyards of a great forest.

The winding White River led us deeper into the hills and onward into Rainier National Forest. Here the timber stood in its virgin beauty, mighty columns rising seventy feet without a limb to mar the sheerness of their height.

The car churned its way along the snow-choked road. Glimpses through the timber ahead revealed a majestic mountain traced against a threatening sky. Above its white dome a wraith of cloud hung suspended. Below restless cloud-forms moved along, crowding and jostling one an-

Defiant Little Tahoma—the rock that stands as a wedge, splitting the glacier flow on the East side of Mount Rainier. It is a jagged peak, rising 3,000 feet, and so steep that neither ice nor snow rest upon it.

Photograph by J. Yolo





We found ourselves in a strange, new land—on ski trails through ghost land!
The trees—weird, ermine-coated figures—huddled in mysterious consultation.

Photograph by Paul J. Standar

other. This was Mount Rainier, whose intimacy we sought.

Two miles below the Park entrance the wheezing car eased its nose into a bank of soft snow. We climbed out, stretched ourselves, organized our packs, clamped on our skis and began our long trek up the road. Half an hour later Ranger Sedegren welcomed us at the Park entrance with a pot of hot coffee.

The trail from here to the lower ranger station left us with rich impressions. There were the weird snow-forms signifying a modernistic trend in nature's craftsmanship. Stumps, rocks and tree-tops became pedestals for strange but simple creations in statuary. There were enormous toadstools, a great frog, a monk's head with his hood and cowl, a passive Buddah. Down the trail there appeared a huge rooster, its comb erect, its tail arched. The illusion was uncanny. On we trudged. The mountain loomed beyond, a darker haze against a murky evening sky. We were by this time over-conscious of the weight of the packs and the trail was merciless in its winding length. At last, against a hummock of snow, we saw the over-hanging gable of the White River ranger station. We cheered—fire, food and

warm blankets. Away from the social world man's wants are few. A fire in the sheet-iron stove gave us warmth and some canned goods thawed in snow-water gave us food. We hung our socks on a chair by the fire, crawled between wool blankets and the room faded into other worlds. We were happy.

A blue light was filtering through the snow-covered windows when we crawled out of bed into an icy morning. But soon the fire was going and Joe was busy with breakfast. Orville and I reorganized the packs, giving them careful attention, for the balance of a pack is vital when the trail is steep and the snow uncertain.

Each of us carried different types of packs. Joe had the Trapper Nelson, modeled from the old Indian pack. It was composed of two parallel upright poles, held apart by two crosspieces, forming a rectangle. A sheet of canvas was laced around the uprights leaving an air passage between the body and the pack bag. Straps from the upper crossbar, designed to go over the shoulders and under the arms to the lower end of the pack, held it in place. Orville carried the Bergen Ruc Sac, of Norwegian origin. An arc of tubular metal, resting on the hips, supporting most of the weight of

Dancing light and shadow add to the beauty of the winter trail on glorious Mount Rainier. All points are accessible by trails, which reveal kaleidoscopic beauty regardless of the season of the year.

Photograph by J. Yolo



the bag and contents. Shoulder straps held it in place. This was considered the most satisfactory ski pack because it has the least shift when making rapid turns. My pack was a Wallace Burr Packboard, of local make, a flat board with two flat crosspieces like the Roman letter I. One crosspiece rested on the hips, the other on the shoulders. The pack-sack was strapped to the wood.

We were in a narrow valley with timbered mountains walling us in on two sides. Less than a mile ahead the valley was blocked by a field of glacier ice—a white carpet spreading out from the timber on either side. Thousands of feet above lay our goal—Sunrise Park—a rim of snow and rock fringed with the gold of the early sun.

Joe fastened the door of the cabin. "Let's go!" he cried.

The trail zigzagged up through the heavy fir and pine of the lower slopes, the morning sunlight weaving dazzling patterns along our way. At noon we stopped to drink hot chocolate from the thermos bottle. The trees had assumed the conical shape peculiar to the higher altitudes and the silence was almost a presence.

Above, in full view, hung a rock-fringed plateau tantalizing in its nearness. But it was dusk before we reached that rim. Nine feet of snow covered most of the blazes along the lower trail, and when these were lost we followed the telephone line—a single wire which had an irritating habit of hiding under snow banks and then shooting skyward over a perpendicular slope.

Now on the rim, we could see grizzled old Rainier looming in full relief against a dark sky, and on the eastern slope, in sharp contrast to the smooth rounded dome, Papoose Tahoma etched a rugged silhouette. Sunrise Park at last!

Joe afterward said that if it hadn't been for a young tree near the edge of the climb he never could have made it. We were just pulling ourselves up when a cheery voice came over the rim.

"Hello down there!"

The winter Park patrol. Davis, Brown and Brockman slid up on their skis.

"Throw us a clothes line," shouted Orville.

"You don't need help, you're traveling light."

"Yeah? Well, we just pranced up to ask you how light is sixty pounds."

They laughed and relieved us of our packs. Then we followed them over the next half mile with a strange buoyancy of body and soul. Our lungs were filled to a tingling fullness with a crystal fluid of purest distillation: mountain air that holds its clean transparent sparkle over miles of intervening hills. It was air that impregnated the system with new red blood.

Ho! The Sunrise Ranger station. We reached it as dusk was beginning to weave and blend the tree-forms into fantastic patterns. Built of logs, a replica of the blockhouse of frontier days, this station appeared as a mammoth mushroom pushing itself from a bed of white. We found that the wind had gouged an entry-way to the door, so we drew up, unstrapped our snow-shoes, kicked the snow from our feet, and entered.

The warmth of the big kitchen was the first delight, but the smell of food made the reception complete. A big logging-camp stove took up a third of the room. A table with its syrup pitcher, heavy porcelain dishes and two gasoline lamps occupied another third. A pair of windows peered through gullies dug in the drifts outside. Adjoining the kitchen was a dining room used as a winter store-room, and through a hallway we viewed the "office" with its switchboards and filing cabinets. This, we were told, was to be our living room for it was graced with a fat, good-natured stove whose friendly personality glowed with a ruddy warmth.

"Come and get it!" came from the kitchen and then the elemental scramble for food.

Crisp bacon there was with edges of golden brown. There was stew with its many and varied constituents from the gayly colored tins in the pantry—potatoes from Yakima, beef from Chicago, peas from Idaho, tomatoes from the Imperial Valley. There was coffee, and golden buttered biscuits, passed around again and yet again with a dominating persistency like the theme of a symphony.

The scattered fragments of conversation around the stove that evening wove a fantastic tapestry. We found ourselves with the rangers deporting a renegade bear, fighting a forest fire, guarding a patch of wild flowers, fishing a man from a crevasse. Then we turned in, but before the zero dawn the winter patrol squirmed into their packstraps and skimmed into the gray of the morning. Down the trail they went to lower slopes. The land of white was ours.

From our windows we watched the churning sky crowding in upon us. At times the veil would rend itself, revealing the naked shoulders of the mountain, cold and stark, with vapor-like snow whipping off into space, a gossamer garment shredded by invisible fingers.

Then came the blizzard! Nature presented to us her most dramatic scene—a storm in higher altitudes. The theatre, a vault of turbulent sky; the stage, a plateau sixty-five hundred feet above the sea.

It began with a plaintive moaning, swelling into a primitive wail, then dying again into a silence. This was repeated over and over. Suddenly the clash of cymbals and the stage became a fury of action. Writhing wraiths of snow rushed in, dancing and screaming, devil-dancers of a ghostly world symbolizing their frenzied fury at the intrusion of earth creatures. The orgy increased in violence; frightened tree-forms huddled their backs against the storm, white bellies of snow to the leeward. Curtains of falling snow obscured all for a moment, but the frenzy of the dance went on.

The fascination of the drama drew us forth upon the stage. The biting, stinging frost filled our nostrils and lungs. We felt a burning pressure against our eyeballs. The swish of icy air rang metallic in our ears. We were helpless supernumerals waiting for a gesture. Our cues were lost in a flood of disorganized sensations, and we tumbled back into the friendly warmth of the kitchen, shivering and gasping. Night dropped its black curtain about the scene but the storm went on.

Four days passed before the shrill overtones died into a plaintive moaning. Busy days they were, for often a lull in the storm allowed us short trips with the cameras. I made attempts with water colors, but the intense cold spread fingerlike crystals over the paper at every stroke of the brush. So I confined my painting to scenes available from the blockhouse windows.

Early on the fourth morning we were awakened by Joe, who was tramping about making inarticulate sounds. We clambered out of bed to find him at the window pointing in the direction of the mountain. The sky had cleared!

Fresh light snow had fallen during the night and we looked upon a new world. The landscape was shaped into rolling swells under fifteen feet of softness and the trees, huddled in groups, were weird ermine-coated spectres. To the east, peak beyond peak, the Cascade Range faded into the distant haze of morning light, while before us the great bulk of the mountain rose high above the deep of the glacier-canyon.

Suddenly a shaft from the rising sun struck the crest of the mountain, tipping it with a dazzling white. A blush of deep rose spread across beneath the white to blend into the purple of the lower slopes, diffusing its warmth into the blue of the glacier. Slowly and (Continuing on page 575)



WITH THE TEXAS FOREST ARMY

By JOHN D. GUTHRIE

"CAPTAIN, I can drill men—I can even wear silk underwear if you tell me to—but I don't know nothing about teaching." This from a husky sergeant of the Regular Army at a Civilian Conservation Corps camp in east Texas.

The captain did not smile. "It's your job to teach that 'peavy' over there how to write his name," he replied. "I don't want any more payrolls going in from this camp with an 'X' mark on them." And the sergeant did!

There are a few men in the Civilian Conservation Corps who cannot read or write, but so far as this company and this captain are concerned, it won't be for long. The men are going to learn things other than how to brush their teeth, swing an ax, or pull a cross-cut saw.

I was making a tour of inspection of the twelve camps in east Texas and getting a great kick out of it. In the first place I never fail to see something magnificent in the primary idea of the Corps, this building of brain and brawn, and the work it is accomplishing is an unfailing source of pride. But the real punch in this particular trip was that thirty years ago, with a party of federal foresters, I had worked, sweated, shivered and calipered longleaf pines all over this section of the State. It was largely a virgin pine forest then, although the saws and skidders were eating through its parklike stillness. And after thirty years, how different it seemed!

The magnificent forest we had gridironed with survey lines in 1902 was gone,—harvested and fed into the saw. I found surfaced roads, concrete bridges, filling stations, and good hotels. The towns, while they were the same as I had known, had changed in many respects—some spread

out, others grown smaller. But the country was much as I had known it, with razorback hogs roaming over the cut-over lands and wallowing in the mudholes along the roadway.

But the virgin trees had gone! With their going, however, forestry had come, and protection against fire had resulted in thousands of acres of fine young pines. State fire wardens and forest rangers went about their business in an enthusiastic and efficient manner, while thirty years ago there was no trace of them. So I adjusted my picture. While the big trees were no more, another crop was coming in, some of them ready for the saw. I discovered, too, that hardwoods were coming in with the new generation of pine—oak, gum and hickory. But beneath them there were millions of young pine waiting for foresters to cut away the hardwoods so sunlight could work its miracle of growth.

And as I measured the two periods, the east Texas of today and the country I had known, I could not resist comparing these husky young men of the Civilian Conservation Corps—the Forest Army of 1933—with the young men who worked and tramped these forests in 1902. There was little difference in ages. We were learning about forests, about forestry, about woodsmanship. We had a job. We did less manual labor with our arms and backs, but we worked ten hours a day, and sometimes twelve or fifteen. Our pay was \$25 a month. There were no radios in our camps, no libraries, no magazines. There was no baseball, no volley ball, no boxing, no entertainment. We had no time for it.

The men of the Forest Army of 1933 work eight hours a day with an hour off for lunch, and including their truck

rides to and from work. Their pay is \$30 a month. Their clothes, their blankets, their toothbrushes, even their toothpaste, are furnished them. Back in 1902 we furnished our own—or did without.

My first inspection was of a camp at Maydelle, on a state forest area of 2,300 acres. Erected on June 16, after some delay, the camp is typical of other camps on state forest projects, of which there are three. The delay was occasioned by difficulty in securing a sufficient and dependable water supply. The Army, responsible for the feeding, clothing, housing and especially the health of the boys, places great stress not only on the potability of the water, but on the amount available. Their standard is 8,000 gallons for twenty-four hours—more perhaps, but no less. This is on the basis of a 200-man camp, enough water to supply many of the small towns throughout Texas. There were civilian agencies during the erection of the camp which doubted the need of 8,000 gallons each day and night for the boys, but the Army, experienced in the ways of many men, said 8,000 gallons—and meant it.

The camp had been operating little more than a month and a half when I inspected it. There was a large mess hall, a bath-house with twenty showers, and a large tent for recreation. Others served for supplies and for camp headquarters, while a long building housed a machine repair shop, a blacksmith, tools, and the camp superintendent.

The camp had a radio, many of the best magazines, some local newspapers, and two libraries—a traveling library of fiction, adventure and travel, and a permanent library containing sixty-seven books on plants, wild flowers, western birds, western trees, game management, wild life, and forestry. Across the road from the camp was an excellent baseball diamond and the great American game was a popular one in the late afternoon. Volley ball, boxing and wrestling had a good following. The Maydelle Camp boasted a champion wrestler—Albert Sabayrac, of Houston.

The daily schedule of this company—No. 883—is about as follows:

Up at six-thirty, breakfast at six-forty-five, work roll call, load tools and leave camp for field work at eight. From twelve to one there is lunch, on the job, sometimes by taking a liberal supply of sandwiches along, sometimes a hot meal sent out by truck. They are back to camp about four, their day's work done, and the showers are busy. From then until supper, at five-thirty, they practice ball, or do as they please. Right after a hearty and well balanced supper, they have a practice ball game, put on some boxing or wrestling,

or a group tackles volley ball, always popular. This continues until dark. Then the recreation tent begins to fill up—writing to the folks, reading, or listening to the radio. Lights are out at nine.

Some of the boys may have signed up to go to a nearby town or, maybe, if it's a Friday or Saturday night, there may be a dance in the mess hall, with pretty good music—sometimes of their own making.

There are no Army hard-boiled rules and discipline; there are simple camp rules which any woods camp must have, rules for the benefit, comfort, and consideration of all the men. After the day's work a man must sign up at the office tent if he is leaving camp, saying where he is going and about when he will return. If he is back for work roll call next morning it is all right; if he isn't, he will have some explaining to do to the sergeant or the captain.

If he is sick, or thinks he is, before he starts to work in the morning, he reports at the infirmary tent and the Medical Officer—every camp has one—finds out what is wrong and prescribes, or marks him "camp." The Army captain has complete charge of the men while they are in camp, but when they start out to work in the morning they are under the direction of the camp superintendent or work superintendent.

What do the boys do in the woods? First, the men are organized into work crews, each under a foreman or leader. After lining up by work crews for roll call, they go to the supply house and the leader passes out their tools for the

day. These are put in the truck which will take them to the job, along with a ten-gallon keg of water and canteens. The Army is fussy about the men drinking except out of those water kegs while away from camp. (Back in 1902 we carried our lunch in a bandana handkerchief tied to our belts at the back, and we drank our water wherever we found it. And we tramped



"Gully-choking" is what the boys call the soil erosion job. Soil wastage is going to be stopped, for the C. C. C. knows its job!

to and from our work.) One crew goes to a road-clearing and fire-lane job, another to a truck trail job. Still another goes to a cutting and thinning project.

The forester with his marking crew has been through this area of timber and marked all the scrub oaks, black and sweet gums, and other "forest weeds" to be cut. So the men know just what they are to do. Each particular part of the job has a foreman. For example, some of the men are felling timber, others cutting up the felled pines into telephone poles, or posts, and the oaks, gums, and other hardwoods into cordwood, piling the split wood in neat ricks along the woods road. Some of this wood will be used in camp but most of it will be hauled out (Continuing on page 576)



EDITORIAL

The Industrial Forestry Conference

ONE of the most significant gatherings in the history of American conservation was the meeting in Washington on October 24, when lumbermen and foresters from all sections of the country sat down together and considered ways and means of integrating forestry on a national scale into the woods operations of private forest industry. Whatever differences may have characterized the groups in the past were laid aside and with mutuality of purpose the conferees sought common grounds of reasonable and effective procedure. The spirit of open-mindedness and co-operation that characterized both foresters and lumbermen throughout the conference were striking evidence that the two groups have reached an understanding of one another's viewpoints and problems that permit them to work together amicably and constructively in dealing with any forest problem, however large or intricate.

The fact that the conference was called upon the initiative of the lumber industry pursuant to Article X of its Code of Fair Competition, which commits it to conservation and the sustained production of forest resources, is indicative of the changed attitude of the private forest operator and his recognition of the fact that constructive lumbering as rapidly as feasible must take the place of destructive lumbering in the interest of both industry and the public. It is highly encouraging that as between the professional forester and the practical lumberman the initial conference developed no material differences of opinion in regard to broad objectives. In the few instances where groups differed the differences were either over methods of procedure or the phraseology of standard practices and were of a nature that can be reconciled.

The conference devoted three days to discussion and formulation of standards of forest practice to be adopted by the industry and of public policies essential to the success of industrial forestry. These proposed standards and policies have been sent the regional divisions of the industry for consideration of their application to regional forest conditions and when these reports are received the conference will reconvene in December to finish its work. Commendation is due the lumber industry for its initiative and the apparent determination of its leaders to inaugurate as rapidly as possible practices that will perpetuate forest growth on private lands. The extent to which the industry will actually carry the recommendations of the conference into the woods, of course, remains to be seen. There are many

things the private operator can do in the way of better woods practice that he is not now doing and his failure to make good on the conservation commitments of his Code of Fair Competition can lead to but one end—a loss of public confidence that his industry can never hope to regain.

The public on its part should understand that transition of an industry as diversified and far-flung as lumbering to new and improved practices is an undertaking that cannot be accomplished in a day, a month or a year. And by the very nature of the problem it cannot be done by the industry alone. Industry must have the cooperation of the public. Written rules of practice in the woods by the private operator will not effect the transition the public has long demanded. It will be brought about most certainly, we believe, by the establishment of clear objectives of forest management and by placing upon the private operator the responsibility of attaining those objectives by his own initiative and ingenuity with the help and advice of professional foresters. But back of his efforts if they are to be successful and lasting there must be public action in bringing about as promptly as possible adequate forest fire protection, systems of taxation that recognize timber as a crop, sources of long-term credit and public land policies that will stabilize forest ownership. If the industry does its part, the public, in short, must be prepared to do its part.

Doubtless there will be those who will expect too much in the way of immediate changes in traditional lumbering methods. It will be unfortunate, however, if public opinion demands the immediate application of all the woods practices that might seem desirable. The forest industries, particularly those that are carrying their own land and timber, are in a critical condition financially and economically and their initiation of conservation practices in the woods at this time will necessarily have to take this situation into account. It would be as unreasonable for the public to expect the industry to go all the way at once as it would be for the industry to expect the public to effect overnight needed reforms in forest taxation. In both instances, correction is not a presto change possibility but a gradual process. However much, therefore, initial practices may fall short of what seem desirable and necessary, the wiser attitude on the part of the public will be to help the industry embark on sustained yield practices by simple and possible steps than to criticize it and refuse to cooperate because it fails to go far enough. In this as in other great experiments, initial efforts must succeed if there is to be an enlarging future.

THE FOREST OF BUSSACO

A NATIONAL FOREST IN BEAUTIFUL PORTUGAL—ON LAND ONCE SACRED TO MONASTIC USES, WHERE NAPOLEON'S INVADING ARMY, UNDER MASSENA, WAS DEFEATED BY THE PORTUGUESE-BRITISH FORCES IN BLOODY BATTLE

By ALAN F. ARNOLD

FEW places in Europe have such varied associations as has Bussaco in Portugal. Monastery and battlefield, forest and palace have, during the course of three centuries, stamped with a unique character these two hundred and fifty acres. Portugal has largely escaped the internationalizing that is so pronounced in many countries and Bussaco, though it has incongruities of its own, is truly Portuguese—and yet like no other place in Portugal.

The palace today is a hotel and the monastery grounds are now a National Forest. It is situated twenty-five miles from the coast, north of Lisbon—a region of low mountains, many streams and beautiful vegetation—and occupies one of the heights of the long ridge called the Serra do Bussaco. From the highest point in the forest, about 1,800 feet above sea

level, are fine views; in the east rises the Serra da Estrella whose rocky mountains are the highest in Portugal; to the west the country slopes to a wide plain with a strip of pine-covered dunes along the sea. The forest itself is surrounded by a high wall with nine gates. Through it are scattered the remains of the monastic establishment, the Palace Hotel, some modern cottages for administrative purposes and some ornamental features. Luzo, a village with noted springs and several small hotels, adjoins the forest at one end.

There is a season at Bussaco, beginning with the advent of summer visitors. But its great attraction, for me at least, is in the month of May. Then one can climb the woodland paths to the little chapels in the same quiet, save for the tolling of the bells, that must have reigned throughout the woods



The Forest is surrounded by a high wall, with nine great gates. The Monastery flourished from 1630 until 1834 and the Carmelite monks observed rigid rules governing the use of the forest. The woods were not only preserved but improved, and their protection was assured by a Papal Bull of Urban VIII, dated 1643, threatening with excommunication anyone injuring the trees. A copy of this is inscribed on a stone panel outside the Coimbra gate.



Most interesting among the monastic buildings are the small structures, still standing, scattered throughout the grounds—hermitages used for special meditation. Usually picturesquely located on high ground, each has its own small court, a well and a place above the tiled roof for the bell by which devotions were regulated.

when the monks were its only occupants. By way of contrast there is the *romaria* or pilgrimage on Ascension Day—one of the many Portuguese festivals which are fascinating opportunities to participate in a holiday of the people. During the winter there are few visitors. The weather is mild but without the dense masses of foliage overhead and the flowers covering the ground in the open spots, Bussaco can hardly be at its best.

The forest seems to have been under some sort of ecclesiastical control since very early times but its real history begins in the seventeenth century with the coming of the Barefoot Carmelites. Their order emphasized austerity and meditation and their establishments were given the name of Deserts. In 1630, having purchased the hill of Bussaco for about \$175, the monks commenced their religious life which lasted until 1834 when all the monasteries in Portugal were suppressed. The name of the Desert is still sometimes applied to the place; it has always been used rather on the *lucus a non lucendo* principle as the thick vegetation within the enclosure is a heritage from its earliest days. A more frequent name is that of the Cercal, or place where oaks grow, these trees forming a conspicuous feature of the forest. From the first the monks were careful not only to preserve the woods but to improve them, adding many new species. Certain rules of the establishment looked to the care of the forest. No trees were to be cut without the consent of the Chapter, and the Prior was to plant new ones each year. Further protection was assured by a Papal Bull of Urban VIII, dated 1643, threatening with excommunication anyone injuring

the trees. A copy of this is inscribed on a stone panel outside the Coimbra gate. A companion panel contains the text of Gregory XV's Bull of 1622 forbidding women to enter the domain. The effect of the latter passed with the disestablishment of the monastery. But the solicitude for the trees remains.

The monks' church stands in the center of the forest—a modest, cruciform structure partly overwhelmed by the new hotel. There were also a refectory, a library and a hospital which have since disappeared. Of the monastic buildings, however, the most interesting are the small structures scattered through the woods. One group consists of hermitages used for special meditation during Lent and Advent. Each hermitage has its small court, often with a well, and a place above the tiled roof for the bell by means of which devotions were regulated. Most of them are picturesquely located, with fine views, and some are inscribed with names and dates recording their foundations. Other structures are small chapels with their altars still covered with the old *azulejos*, for in Portugal, as in Spain, tiles are a characteristic decoration both inside and out. Then there are the stations on the *Via Sacra* which climbs the steep slope above the church. Each station bears a tablet; for example:

*AQUI SE CONSIDERA O PASSO AONDE XPSN
COM A CRUZ AS COSTAS CAHIO TERSEIRA VES*

(Here meditate of the spot where Christ Our Lord
with the cross on his back fell the third time)

In the early days of the monastery the forest was already famous for its luxuriance and variety of trees. During the



The atmosphere is one of quiet beauty—the historic character of the place,—tradition reaching back through centuries pervades the air, and one still finds here the peace that possessed it in the days of the Barefoot Friars.

last hundred years the number of species has been greatly increased. The most famous of the trees are the so-called Bussaco cedars. They are, however, neither a cedar nor a Portuguese tree, but a cypress of unknown origin. They may have come from India as many plants from there were sent to the monks in the early days. Some are very striking specimens, having been planted two and a half centuries ago. The largest, and the biggest tree at Bussaco, stands near the Hermitage of St. John at the beginning of the *Via Sacra*. It is of no great height but is five feet in diameter and rises clear of branches for some distance, gaining in impressiveness from its position at the edge of a cliff and from the diminutive character of the buildings above which it towers.

The two hundred and fifty acres contain nearly one thousand species of woody plants with an even larger number of herbaceous ones, for Portugal is a meeting place of flora from all over the world. There are firs from Africa, larches from Japan, maples and arborvitae from the United States, araucarias from South America, and eucalypti from Australia. There are rhododendrons, hollies, laburnums, brooms and camellias. Ivy and moss are everywhere. Whatever lack of harmony there may be in a small forest containing such a variety of plants there is no lack of interest and, for the most part, the growth is so dense that the individual plants count for little in the deep masses of foliage. Down in the Vale of Carregal both earth and sky are hidden

by the luxuriance of creeping plants, ferns, shrubs and trees, and the pool there is shut in by a dense wall of green. On the slopes just below the Cruz Alta, the highest point in the Cercal, the paths climb among moss-covered rocks, low gnarled trees and sunny spots dotted with foxglove and asphodel.

Bussaco first acquired notoriety when its peace was broken by the Peninsular War. In 1810, after unsuccessful invasions by Junot and Soult, Napoleon sent an army to Portugal under Masséna. The advance of the French, whose chief objective was Lisbon, was retarded by the movements of the Portuguese-British army in command of Wellington, and among the engagements fought during this period was the battle of Bussaco. The Portuguese and British occupied the heights of the Serra, the slopes of which the French had to climb to carry out their attack. Early on September 27, 1810, they advanced at several points but the allies, in their advantageous position, could not be dislodged and the French gave up the attack after a loss of nearly 5,000 men. The actual fighting was altogether outside the enclosure but Wellington had his headquarters in the monastery buildings—duly recorded on a tablet there—and to them, after the fight, the wounded were removed. Just outside the wall is a small museum with maps, uniforms, arms and other material from the war. One of Southey's Inscriptions is for the Desert of Bussaco:

(Continuing on page 569)

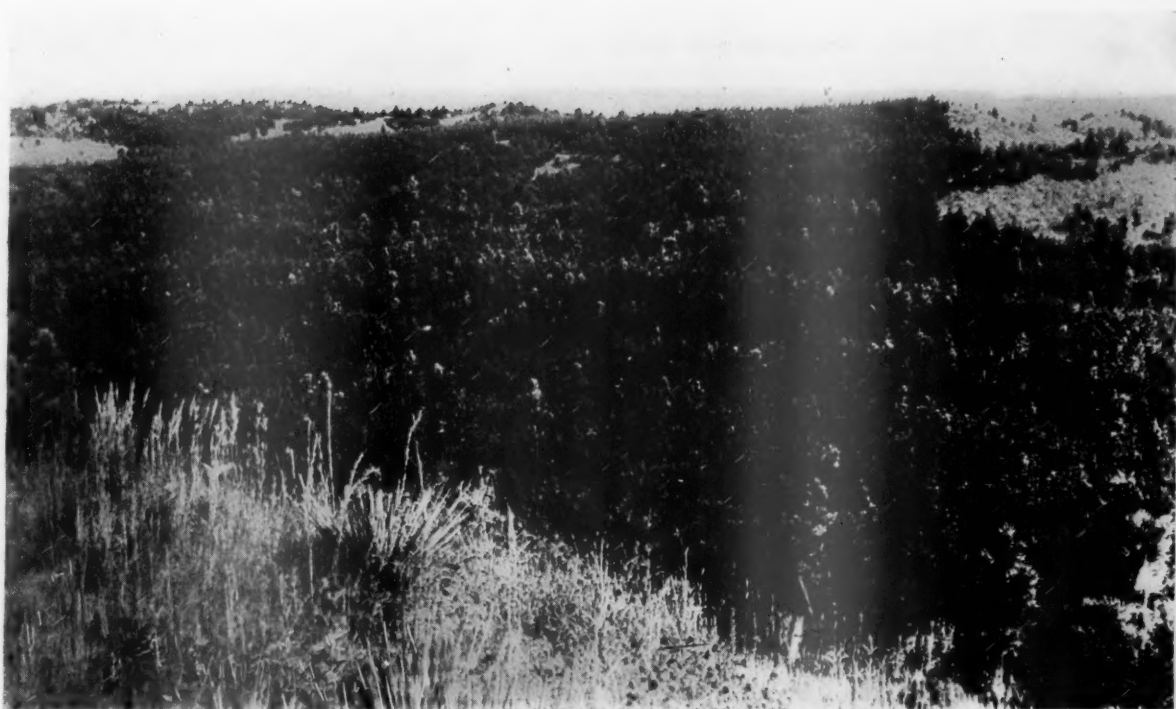


Planted by the monks in the 17th Century, this is the largest of the cedars (*Cupressus lusitanica*), and the biggest tree at Bussaco. It stands near the Hermitage of St. John, at the beginning of the "Sacred Way."

TREES FOR THE PRAIRIES

How Foresters Are Growing Trees Where Nature
For Thousands of Years Has Failed

By CLYDE M. BRUNDY



Over the Great Plains region, equal in area to New England, the Atlantic Coast States and Florida combined, trees are growing where they have never grown before,—at least not for millions of years—a vital phase of the "new agriculture" of the West. This young forest of jack pine is in Nebraska.

THROUGHOUT the Great Plains region, where forests are even harder to find than the proverbial needle in the haystack, tree planting is going steadily forward. From far into the Montana-North Dakota wheat country, across the Colorado-Nebraska-Kansas dry-farming territory, and out onto the vast expanse of Texas cattle range, tree planting is no longer a holiday sport. It has become a business proposition, an economic necessity.

Yet so quietly has this work gone forward that only those who have had an opportunity to study the program in its entirety can comprehend the vast scope of the project or visualize its ultimate effect upon this, one of America's last agricultural frontiers.

Over an area in excess of 400,000 square miles, including portions of ten states, farmers and ranchers are practicing this new reforestation, a system of tree planting and culture introduced and sponsored by the United States Department of Agriculture, working in close cooperation with the various state agricultural colleges and state departments of agriculture. The final aim of the movement is to

provide for every farm and ranch of the plains area a shelter-belt or wind-break, a farm woodlot, a choice planting of ornamental trees and shrubs, and an orchard of hardy fruit trees.

Trees planted on the plains region farm must serve a dual purpose. First they must give ample protection against the chilling winds and drifting snows of winter and the withering blasts of hot summer winds. Then they must offer shade and lend an atmosphere of beauty and dignity to the farmstead. This plains area reforestation is one of the most outstanding phases of the "new agriculture" in the western territory. Modern machinery, together with new and better cultural methods, is rapidly bringing to an end that era of the dry-homestead and desert-claim. And in their place is appearing a far different unit, a unit based on scientific methods—the plains area diversified farm. The summer fallow method of moisture preservation, the new two, three and four row machinery, the furrow drill, the duck-foot cultivator, the combine, the motor truck and car, and the improved surfaced highway have all contrib-

uted in various ways and degrees to the bringing forth of this new and better system of farming.

Today, when Colorado alone has approximately 10,000,000 acres of productive dry-farming territory, the shelter-belt and farm woodlot are playing an increasingly important part in adding to the value of plains region farms. Dozens of such shelter-belts and woodlots are now furnishing fuel, fence posts and rough lumber, in addition to performing their primary task of providing protection, shade and shelter.

To really understand the success, effectiveness, and stability of this new reforestation, one must travel through some portion of the plains region, or inspect an experimental farm of the United States Department of Agriculture such as is located at Mandan, North Dakota, Cheyenne, Wyoming, or Akron, Colorado. Even still more convincing and conclusive are visits to the farms and ranches of this prairie country. For it is here, on these same farms and ranches, that plains area reforestation is meeting its real test, a test that is made extremely difficult by heavy winds, sudden changes of temperature, drought, hail storms, insect and rodent damage, and other adversities.

Over the plains region, equal in area to all of New England, the Atlantic Coast states, and Florida combined, reforestation workers meet widely different conditions and problems. Extremities of altitude, temperature and length of the growing season make it impossible to establish definite rules and practices. In southeastern Wyoming plantings must be able to withstand an altitude of 7,000 feet; along the Missouri River in North Dakota the altitude ranges about 1,300 feet.

According to Robert Wilson, former supervisor of reforestation in the northern Great Plains region for the Department of Agriculture, there are two distinct factors which enter into this program. These factors he defines as science and art.

"The scientific phases can be and are being well handled at the numerous experimental farms and state nurseries,"

Mr. Wilson stated. "Here we propagate seedlings by the millions, for distribution at cost; we study and classify trees and shrubs according to their ability to live and thrive under adverse climatic conditions; we import, experiment with, and introduce for general culture many new species; and we also study cultural methods. In addition we endeavor to find means of controlling destructive rodents and insects. All this we can do and perhaps even more. But our work is only the beginning!

"When we ship the seedlings to the farmer with instructions for proper planting and cultivation the problem passes from our hands. Science has then done its share. It is art that must rule after the farmer receives his trees or shrubs, that curious art of husbandry, so dominant in some people and so recessive in others. It is that spark of genius which enables one farmer to keep his trees alive and growing vigorously, while those of his neighbor across the road are dying."

The art of tree husbandry, Mr. Wilson concedes, is a matter of inspiration and perspiration—with emphasis on the latter. It is best and most easily acquired by those who have a natural love of plant life and who really enjoy working with trees, shrubs, and flowers. The fact that this art is being acquired by hundreds of men, women and children throughout the plains region cannot be doubted by those who remember and compare the bleak lonely desert-claims of twenty years ago with the prairie farmsteads and ranches of today. Then it was desolation supreme. Now the traveler passes by scores of modern farm homes, sheltered alike from winter snows and sultry summer sunshine by large trees of the broad leaved varieties.

For convenience in keeping in touch with and aiding farmers in all parts of the Great Plains area, the entire territory has been divided into three divisions. These divisions are known as the Northern, Central, and Southern Great Plains Regions. The northern portion, including the western parts of North and South Dakota and the prairie sections of Montana and Wyoming, is served by the Man-



For the past fifty years the Federal Government and other agencies have been experimenting with growing trees on the prairies, so that eventually every farm and every ranch will be provided with wind-breaks, farm woodlots and orchards of hardy fruit trees. Above is shown a successful honey locust wind-break.



This wind-break of cottonwoods serves a dual purpose to the prairie farmer. It provides protection against the chilling winds and drifting snows of winter and the withering blasts of summer heat. At the same time it provides shade and lends an atmosphere of beauty to the farmstead.

dan, North Dakota, and Cheyenne, Wyoming, field stations. The central division includes western Nebraska and Kansas, as well as the plains portion of Colorado. Experimental stations for this area are located at Akron, Colorado, North Platte, Nebraska, and Hays and Colby, Kansas. Experimental stations at Woodward, Oklahoma, Dalhart, Texas, and Tucumcari, New Mexico, care for the needs of the southern division, including western Oklahoma, northern Texas, and eastern New Mexico.

At each of these stations, as well as at the various state forestry stations, many different species of trees and shrubs are planted, subjected to various cultural methods, and experimented with as to their ability to withstand certain climatic and environmental conditions. Careful record is kept of all results obtained from such experimental plantings, in order that correct recommendations may be made to farmers when they order their trees from the state nurseries.

The first idea of the possibility of growing trees in the naturally barren plains area originated with Dr. Charles E. Bessey, when he was Professor of Botany at Nebraska University, between 1880 and 1890. It was not, however, until 1891 that sufficient funds could be secured to finance an experimental planting on a sandy hilltop near Swan, in Holt County, Nebraska. Planting stock for this project was furnished by Dr. B. E. Fernow, then Chief of the old Division of Forestry. So well did this planting succeed that further steps along this line were taken by William L. Hall, in charge of tree planting for the United States Forest Service. In 1901 extensive plantings were made in various parts of the Nebraska sand-hill region. After this work had been completed all members of the first "reforestation" party met in Washington and prepared a report of the plantings, together with maps showing the location of such public lands as were considered suitable for tree planting purposes. The recommendations made for setting certain sections of land aside for further tree planting were approved by Mr. Hall, and also by Gifford Pinchot, then Chief of the Forest Service. In 1902 a Presidential Proclamation by Theodore Roosevelt created the Dismal River, Niobrara River and North Platt Forest Reserves, comprising great stretches of land to be given over entirely

to tree planting—in a region where the annual rainfall averages less than eighteen inches.

Despite arid conditions, the trees planted in Nebraska's sand hills grew. Furrows in which the seedlings were planted were so shaped as to retain a maximum amount of the scant rainfall. A barbed wire fence was built to keep the cattle off the reserve and fireguards were plowed. Then the trees were left to shift for themselves. And they did. Today almost all of them are alive, in good condition and stand from twenty to thirty feet in height, and thousands of new trees are being planted each year. In many respects these plantings now differ but little from the native woods of Colorado, Michigan, or Vermont.

Such was the first attempt of the Forest Service to make trees grow where they had never grown before, at least where they had not grown since before—long before—Columbus sailed westward. But tree planting in the plains began with the coming of the first pioneer settlers. When these first home-builders laid the walls of their sod houses, and turned over the prairie grassland with their rude plows, they wanted trees for their homesteads. They took those to be found along the water courses and planted them on the wind-swept upland acres. A few of them lived and thrived. Most of them died.

The task that faced the Department of Agriculture when it first began a scientific study of plains area reforestation was not a simple one. But aid came to the department and its several struggling field stations in the form of the Clarke-McNary Act, which provided federal funds to be used in furthering and promoting reforestation work. Since the enactment of this bill rapid progress has been made.

Under the provisions of this Act, farmers may obtain seedlings at a minimum cost. The several states of the plains area handle seedling distribution work in different ways. Colorado maintains a nursery at the State Agricultural College, where the broad-leaved varieties are propagated. Conifers are grown under contract by the Forest Service at their high altitude nurseries. In Wyoming the trees are all furnished from a state-owned and operated nursery. Nebraska contracts for her seedlings and transplants from commercial nurseries, (*Continuing on page 574*)

A FOREST PAGE FOR BOYS AND GIRLS

Conducted by WAKELIN MCNEEL

HOWITZERS OF THE WOODS

ONE should not write about howitzers at Christmas when the joys of the year have reached flood tide; for howitzers suggest tragedy and sorrow. But there is one that brings delight. It is the howitzer of the woods.

In some regions it seldom gets to be much more than a bush, but in others it reaches sufficient size to deserve the name tree. You will find it described in any tree book that is at all complete. So we will call it a tree. A boy nicknamed this tree "howitzer," and what one boy likes many others are quite sure to like.

This is how it happened. It was one of those crisp, bright days in early November. The sun shone full in a cloudless sky, and the leafless trees gave a gray and sombre aspect to the woods. We were resting from a hike on the warm side of a hill. A good natured quarrel broke out between two boys, one accusing the other of snapping something that hit him in the face. Any one who is wise pays no attention to these fleeting tempests of ribaldry among boys. The give and take develops sportsmanship; and friendships are built in these verbal airings. Anyway, this spat led to a discovery, that was in itself a very severe reprimand to the quarrelling members of the party.

Nature has contrived many ways to distribute her seeds. Wings are provided the seeds of pine, maple and elm; parachutes carry the seeds of the cottonwood and willow over wide stretches, but the witch hazel has a sort of

catapult that sends its seeds far, wide and handsome. It did not take a Sherlock Holmes to discover that here was the cause of the good natured quarrel. The aim of the seed capsule was just right and the warm sun provided the trigger that sent the seeds against the boy's cheek. He thought his companion guilty of the misdemeanor. This discovery, so accidental, was a happy one, for it added a perennial interest in the late autumn woods, and each year these boys renew their acquaintance with the most interesting of fall trees, the witch hazel.

Is it clear now how the name howitzer came to be applied? We had each boy take home a branch of the witch hazel with loaded seed pods with instructions to put them in a warm room, to watch them closely, and then report the greatest distance any seed was thrown. One boy reported a distance of thirty-three feet.

There are so many interesting things about the witch hazel that it is surprising more people don't have an intimate acquaintance with it. Probably we would have passed it by that day but for its unerring aim. In the spring it is a shrubby little tree, no more attractive than the rest, just a part of the undergrowth. But come to it in October and November,

when the acorns are dropping from the oaks, when the squirrels are busy completing their cache, when the trees are bare, and only a belated aster is left from the season's bloom;

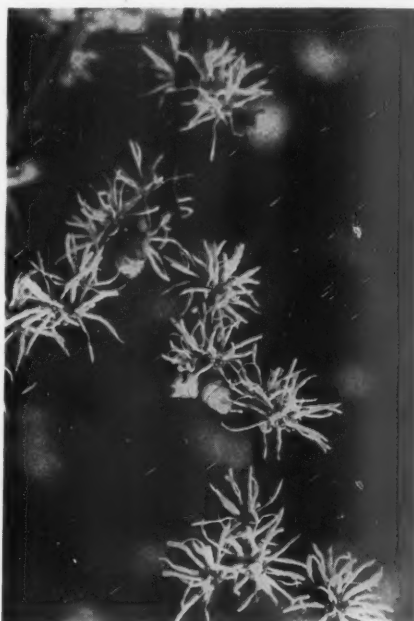


A veritable machine gun nest hidden delusively among the flowers—worth going miles to see when it is active on a dry, crisp, frosty November morning.



come to it then and you can gather the last bouquet of the year. For witch hazel turns the year up-side-down by blossoming in the fall and giving to November the aspect of May. Even after the killing frosts it blooms on as vigorously as ever. To see its yellow ribboned blossoms against the snow is a sight to exclaim about.

This is the main point of interest about this tree, which, like the orange in tropical regions, blossoms at the same time the fruit ripens. This gives rise to its botanical name, *Hamamelis*. *Hema* means together; *mela* means fruit, and refers to the fact that the fruit and flowers appear on the same plant at the same time. The illustrations show that the seed pods are bunched among the delicate blossoms. On a branch can be found the yawning capsules of last year; the bullet pods of this year appearing like monkey faces among the flowers; the flowers which develop into howitzers one year hence; the buds with all their possibilities; and maybe a tenacious leaf of brilliant orange spotted brown will cling as though reluctant to go. Where can be found a branch of greater interest? Cut a bouquet of these branches and carry it home. Everyone will marvel that a tree can be found in blossom after the frosts have destroyed all foliage. The fragrance will fill the room, and soon the thing will happen that occurred as we lay on the warm hillside that early November day. There will be a sharp click and the small noise of some tiny objects hitting



Colorful when the woods are sombre-hued, the odd habits and mysterious powers and secrets of the witch hazel make it the most interesting of the northern flora.

the wall or the glass. It is the seed, smaller than those of an apple, discharged by the seed pods.

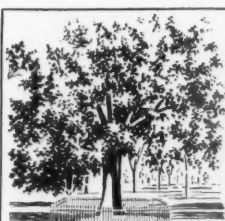
There are many other interesting things about the witch hazel. Indians taught white men that this plant contained a drug with curative powers when rubbed upon sprains and bruises. The witch hazel you buy in the drug stores is made from the bark of this tree. When you were a child suffering from mumps your mother may have rubbed witch hazel on your swollen cheek to bring relief, and now that you are older and mayhap use the razor occasionally, you rub it on the face as a balm. Chew one of the little branches, and you will be able to identify it readily by the taste.

The blossoms themselves remind us of the emblem seen in Greek history in connection with the ancient healer, Aesculapius. This emblem shows the cup of life with snakes emanating from it. So this flower has four twisting strap-like petals coming from a two-celled ovary, and knowing the alleged healing properties of the plant, one does not have to stretch his imagination very much to see the resemblance between Aesculapius' emblem and

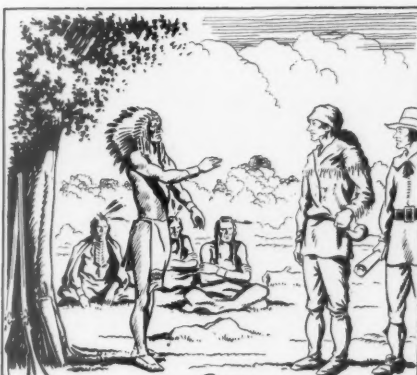
this flower. The most curious thing about this plant is yet to be told. Some say that the name witch hazel was given it because of the mysterious power it possesses to locate underground water and thus determine the site for the digging of a well. An Old Timer who can "water witch" is still to be found in most long-settled com- (Continuing on page 574)

FAMOUS TREES EVERY BOY AND GIRL SHOULD KNOW

No. 10 --- THE "LIBERTY TREE"



ON THE CAMPUS OF OLD HISTORIC ST. JOHN'S COLLEGE AT ANNAPOLIS, MARYLAND, STANDS THE FAMOUS "LIBERTY TREE," A GIANT TULIP POPLAR CONSIDERED BY MANY TO BE THE OLDEST LIVING THING IN THE EASTERN PART OF THE COUNTRY. IT WAS A FLOURISHING YOUNG TREE WHEN COLUMBUS DISCOVERED AMERICA.



HERE THE INDIANS GATHERED AND, ACCORDING TO HISTORIANS, THE FIRST TREATY WITH THE SUSQUEHANNOCKS WAS MADE UNDER ITS SHADE IN 1652.



LATER AS THE REVOLUTIONARY WAR BEGAN, DRUMS ASSEMBLED THE PATRIOTS OF ANNAPOLIS ON THE CAMPUS OF THE COLLEGE AND HERE ALSO THE PEOPLE GATHERED TO CELEBRATE THE JOYFUL TIDINGS OF PEACE.



IN 1791 WASHINGTON VISITED ST. JOHN'S COLLEGE AND RESTED IN THE COOLING SHADE OF THE OLD TREE, AND IN 1824 LAFAYETTE WAS ENTERTAINED BENEATH IT.

NORWAY SPRUCE

Picea excelsa, Link



NORWAY spruce, the common spruce of Europe, is widely planted in the United States. Its native range extends beyond Norway to nearly all of middle and northern Europe, where it is at home from sea level to the higher mountain slopes where moisture is abundant but not stagnant. Early introduced in this country, it is hardy in all of our northern States as far west as North Dakota, and again in many western States. Like other spruces, it grows naturally in cool humid climates but may be planted with comparative success as far south as the southern highlands of Georgia, Tennessee, and Arkansas. Although preferring well drained, sandy loam, it has been successfully planted on almost all soils except those which are sour or permanently water soaked. It has been widely planted for wind breaks and shelter belts in the western prairies, but is happier in the more humid regions of the northern, eastern, and Pacific coast States, where it may live to a hundred years or more. Frequently, however, some of our native trees would have been better adapted to many of the regions where it has been planted.

Occasionally attaining a height of 150 feet, with diameters of three feet or more, American grown Norway spruce usually begins to deteriorate before reaching sixty feet and it seldom lives over 100 years. Young open-grown trees up to a height of twenty-five or thirty feet are symmetrically cone shaped, with a single straight tapering trunk, and branches arranged more or less in annual whorls. These grow heavier and more spreading with age, and may be retained to the ground through the life of individual trees. With increasing age, the tree assumes a ragged, unkempt appearance, for the foliage becomes thin, and numerous long slender branches grow as if suspended from the main branches.

The bark is reddish-brown, scaly and seldom more than half an inch thick. Reddish or light brown cone shaped winter buds, without resin, form before late summer, and each needle or leaf is attached to the twig separately. Although the shiny dark green needles point upward and forward, their bases entirely surround the twig. They are a half to three quarters of an inch long, have four sides, each with tiny white lines, and remain on the twig for six or seven years.

As Norway spruce attains maturity the spread of the side branches increases and the pendulous branchlets become more apparent.

Unlike the pines, all spruce trees mature their cones and seed in a single season. In the spring, male and female blossoms may be found on the same trees. The male or staminate flowers are like little yellow catkins on the ends of the twigs, while the pistillate ones are usually higher on the tree and range from green to purple. They stand upright on the twig until fertilized, and gradually turn down until they mature in the fall as pendulous, cylindrical cones four to seven inches long and light brown in color. During the late winter and early spring the scales spread back to release the winged seed.

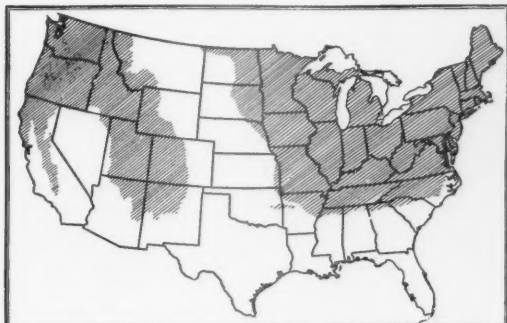
The scientific name, *Picea excelsa*, was given this tree by a Swedish botanist named Link in 1841. *Picea* is an ancient Latin word for spruce, derived from *pix*, meaning pitch, while *excelsa* comes from the Latin word *excelsus*, meaning elevated or tall.

The wood of Norway spruce is soft, weighs about twenty-five pounds to the cubic foot, is straight grained and easily worked. Although not durable in contact with the soil it is widely used for construction purposes. The heart wood is yellowish white, and the thin sapwood is white. It is an important source of pulp for the manufacture of paper, and has been planted in many of the northern and eastern States for that purpose.

Although extensively planted for forest purposes in many parts of the north and east, Norway spruce has proved especially successful as an ornamental tree and for farm wind breaks and shelter belts in the middle west. It may be pruned and can be used for hedges. Christmas tree plantations have proved financially successful, but the early shedding of the needles, after the tree is set up in a warm house, makes all spruces less desirable than the firs.

There are relatively few enemies of importance. Chief among these are the red spider and several parasitic fungi, but ornamental trees probably suffer most for lack of moisture and because the soil around the roots becomes too severely packed. Grass fires may do severe damage, and in many localities late frosts may destroy the leader and some of the terminal buds. The tree recovers, however, with only a slight deformity.

Norway spruce has shown ability to adapt itself to a wide variety of American conditions, and is generally accepted as readily as a native tree.



Approximate areas within the United States where Norway spruce may be grown.



Light brown cones four to seven inches long grow near the tree top, and ripen in a single season.



Upper: Catkin-like staminate blossom. Lower: The cone-like pistillate blossom stands erect with the scales separated.



The circular growth in the reddish-brown bark is where the stub of a former branch has been overgrown.

President Considering Educational Program for the C.C.C.

A comprehensive educational program for the 300,000 enrolled members of the Civilian Conservation Corps is before President Roosevelt for approval, it has been learned through unofficial channels. While the nature of the program was not definitely known at the time of going to press, it was believed to have been developed along vocational lines and to include the elements of rudimentary education.

In some quarters opinion was expressed that the program will lay particular stress on the preparation of the young men for a "back to the land" movement, equipping them not only with knowledge of the fundamental trades, but also with basic land sciences. At any rate, it was reported, the program will be far-reaching in scope.

For the past several weeks a series of conferences have been held in Washington, bringing together the educational leaders of the country to meet with representatives of the Secretary of Interior, the Secretary of War, the Director of Emergency Conservation Work, the Forest Service and the National Park Service. These conferences have been presided over by George F. Zook, Commissioner of Education, Department of the Interior.

All of these organizations, it was learned, will participate in preparing educational material for the program, each presenting its function in preserving, developing and administering the nation's natural resources. Lectures, motion pictures, radio, textbooks, and especially prepared literature will be available. And although it could not be confirmed, it was said that the President was considering employing a corps of qualified teachers to assist the various government bureaus in conducting the program in the camps.

Foresters Wanted for NRA Projects

The United States Civil Service Commission has announced open competitive examinations for the positions of Principal Conservationist (Forestry), at a salary of from \$5,600 to \$6,400 a year; Senior Conservationist (Forestry), from \$4,600 to \$5,400 a year; Conservationist (Forestry), from \$3,800 to \$4,600 a year; Associate Conservationist (Forestry), from \$3,200 to \$3,800 a year; and Assistant Conservationist (Forestry), from \$2,600 to \$3,200 a year.

These new positions have been created by the emergency work, approved by the Public Works Board as a part of the National Recovery Act program, and appointments may be only for the duration of such work.

Applications must be filed with the Civil Service Commission, Washington, D. C., not later than December 12, 1933.

20th Game Conference

The dates for the Twentieth Game Conference, held under the auspices of the American Game Association, have been tentatively set for January 22, 23 and 24. The Conference will be held either in New York City or Washington.

By late January most of the hunting seasons will be over, and it is believed conservation officials, sportsmen, game breeders, scientific workers and others can attend in much larger numbers than would be possible early in December, it was announced.

✓ Quikwerk TOOLS



proven in forestry work

• The thousands of Quikwerk wedges, sledges—picks, mauls and hoes that have already been shipped for use in hundreds of Civilian Conservation Corps camps furnish ample testimony of the acceptance these famous tools have secured. You will want them too.

• Skillfully manufactured from selected raw materials by time tested processes QUIKWERK TOOLS promote safety and good workmanship. Spacious storerooms, well stocked with newly made tools facilitate prompt shipment. Specify QUIKWERK TOOLS when you are opening new camps or enlarging old ones. There is much to recommend them.

BARS
•
HOES
•
PICKS
•
MAULS
•
WEDGES
•
SLEDGES
•
HAMMERS
•
MATTOCKS
•

Send for our complete catalog.

WARREN TOOL CORPORATION

GENERAL OFFICES - - - WARREN, OHIO

WESTERN CONIFERS FOR FIELD PLANTING

Large extra hardy nursery stock of all principal western species

By the dozen; by the hundred; by the thousand

ALSO CERTIFIED TREE SEEDS

The Long-Bell Lumber Company

LONGVIEW, WASHINGTON

When Writing Advertisers—Mention AMERICAN FORESTS

SANTA NEVER FORGETS

AT CHALFONTE-
HADDON HALL



"A Merry Christmas to all" is again our pledge at Chalfonte-Haddon Hall. For, frankly, we like to play Santa Claus. Maybe it's because we've done it so often, and because it seems to please our friends.

Again we've planned a real old-fashioned Christmas for you, with everything from filled stockings to stuffed turkey. No fuss and fatigue like you'd have at home, but a true family holiday. . . . A rally round the Christmas tree for carols. . . . Stockings bulged with presents and surprises for the children. . . . Holiday entertainments in the hotels. . . . Out-of-doors, a brisk turn by the sea till your cheeks glow like St. Nick's and your appetite is rampant. . . . Then a triumphant family dinner that will make you think Santa's turned chef.

At night the Boardwalk is a carnival of lights and gaiety. It will be so much fun, you'll want to remember every minute. So come down Saturday and make Christmas last three days this year, or even longer. We celebrate all during Christmas week. Low winter rates. American and European plans.

Leeds and Lippincott Company

CHALFONTE- HADDON HALL

ATLANTIC CITY

Civilian Conservation Corps May Be Expanded

President Roosevelt's plan to give employment to four million persons this winter carries with it possibilities of a very substantial expansion of the Civilian Conservation Corps. The extent to which the Corps can be enlarged is now being studied by the various Government agencies involved and as this issue goes to press plans are moving rapidly to determine the extent to which the Corps can help meet the President's declared determination to put four million people to work.

Preliminary estimates indicate that it may be possible to more than double the present enrolled personnel of the Civilian Conservation Corps, utilizing the additional men on the same type of work now being done from the 1,468 camps already established. The national and state foresters, it is said, estimate that

they can provide work for three hundred thousand more men, most of whom can be handled from camps. The additional numbers that can be employed in National Parks, State Parks, Indian Reservations and on the Public Domain is estimated at over two hundred thousand.

If the Civilian Conservation Corps is extended to the full practicable limit of its possibilities, it would thus give employment to a total of over eight hundred thousand men. Approximately three hundred thousand are already employed in the Corps camps. The decision as to whether the four million men program of employment will call upon the Corps for expansion or will be worked out on the basis of home rather than camp employment is now under consideration by Director Hopkins of the Relief Administration.

Start Erosion Control Work in Tennessee Valley

The extent to which sections of the Tennessee River basin are fast becoming the "bad lands" of the East is revealed in the report of a preliminary survey of the Norris Dam watershed made for the Tennessee Valley Authority by H. H. Bennett, recently appointed chief of the new bureau of soil erosion control in the Department of Interior, and made public by Edward C. M. Richards, chief forester of the Authority who accompanied and cooperated with Mr. Bennett in the survey.

Of the 1,856,000 acres which constitute the drainage area of the Clinch and Powell Rivers and Cove Creek and other streams that feed the reservoir area above the Norris Dam site, approximately sixty per cent are in forest. Of the remaining 742,000 acres, which is now or has in the past been cleared for cultivation, sixty per cent is, to quote Mr. Richards, "absolutely destroyed for farming," the soil washed away and the ground so ruined that it is out of the picture for future agricultural use.

This means that 445,000 acres of waste land, or one-quarter of the surface of the watershed above the dam site, constitutes a serious menace to the proposed power and flowage con-

trol project. Silting, according to engineers' figures, is taking place in this region at the rate of about one per cent a year. If this erosion and washing away is not halted then the Norris Dam would fill up twenty-five per cent in that number of years.

Preparatory plans are being pushed by the Department of Forestry and Soil Erosion for taking care of and using the twenty-five Civilian Conservation Corps camps which have been allocated to the Tennessee Valley Authority.

Five camps will be located at Muscle Shoals, Alabama, all on property of Nitrate Plant No. 2 near the Wilson Dam. Twenty camps will be in the Norris Dam watershed, near Knoxville, Tennessee. Arrangements have been made for the enrollment of at least sixteen local men in each camp so that a total of eighty young men in the neighborhood of Muscle Shoals and 320 from the Norris Dam section will have an opportunity to enter these camps for the period ending March 1.

"The Authority is bringing these camps into the Valley for the purpose of making a beginning in the great problem of soil erosion control," said Mr. Richards.

9,000 Put to Work in National Forests on NRA Projects

In one month, 9,000 men have been put to work directly on NRA projects under public works allotments within the National Forests, the Department of Agriculture announced October 10. Following approval of wage scales by the Secretary of Agriculture on September 8, men have been employed at a rate of 3,000 per week. Additional thousands of men are at work producing, fabricating, and transporting the steel and wooden and other materials required.

Allotments of a \$10,000,000 fund for the construction of National Forest development roads and trails, and a fund of \$15,982,745 for miscellaneous National Forest improvements are already the sources of direct employment for 9,000 men. In the National Forest highway construction projects, for which \$15,000,000 of public works funds also has been allotted, employment is also proceeding. This highway work is handled by the Bureau of Public Roads and the Forest Service, in cooperation with the states. These three funds provide for improvement work in all the 148 National Forests and the new forest purchase units scattered throughout the United States.

Forest work under the development roads and trails allotment will be concentrated on

the construction of truck trails and horse and foot trails which lead to the development and broader use of the forests and contribute greatly to fire protection. The National Forest plan for a network of these ways of transportation and travel, trade, touring, and fire fighting, will be greatly advanced by the new work.

Most varied are the activities coming under the forest improvement fund, which covers practically all other kinds of fire control and administrative improvements except roads and trails. The work includes timber disease and insect control, timber stand improvement, planting, estimating timber resources of certain areas, revegetation of forest ranges, rodent control, eradication of poisonous plants, erection of buildings, development of water supplies and recreation camps, surveys of boundaries, improvement of fire control facilities, and numerous other projects. These jobs will also carry on forest work long planned, but not completed for lack of men and funds. The improvement allotments include \$1,668,000 for use in the National Forests of the eastern region, and \$2,129,000 for those of the Lake States region, the remainder of the fund of more than \$15,000,000 being distributed between the seven other great forest regions.

When Writing Advertisers—Mention AMERICAN FORESTS

South Given Additional C.C.C. Camps

The new distribution of Civilian Conservation Corps camps for the winter period will result in the addition of 25,000 men to the forestry forces now working in the southern states, according to Robert Fechner, director of Emergency Conservation Work. Fourteen southern states have been allotted 471 camps, an increase of 121 camps over the number maintained during the first six month period. All told, 97,000 members of the Corps will work in the forests and parks of these fourteen states until March 1. Most of the new workers will be transferred from the far West.

Mr. Fechner also announced that the work of replacing 126,000 men who were discharged at the termination of the first enrollment period or who were previously discharged so that they could fill other jobs, is progressing rapidly. The corps, he expects, will be at maximum strength of 302,000 by late November.

A new feature of the winter camps will be the enrollment of a limited number of qualified cooks. State selection agencies have been instructed to choose as many cooks as are required to meet the needs of individual companies, so long as the number does not exceed four cooks for any one camp.

For these men, the customary regulations regarding age and unmarried status is to be lifted, but one qualification will be vigorously enforced—the men must be experienced cooks. These men in some instances will replace regular Army cooks who are to be relieved. In

other instances, they are being selected to meet the needs of new companies being formed. No promise is given them of a better rating than the rest of the men, or of an additional cash allowance.

Approval of the Indian Emergency Conservation Work program for the winter was also announced. It calls for the expenditure of \$4,000,000 on the operation and maintenance of Indian reforestation camps on sixty-eight reservations. A total of 14,400 Indians are to be given work on improvement projects which are counted upon to greatly increase the value of the Indian lands.

"The Indian Emergency Conservation Work program will continue for another six months," John Collier, Commissioner of Indian Affairs, stated. "I predict that the total expenditure of about \$10,000,000 will, before May 1, have added to the measurable capital value of the Indian lands not less than \$20,000,000."

Among the types of work projects which will be carried on during the winter are the following: Fighting forest fires, construction of trails, building fire breaks, felling snags, constructing lookout houses and telephone lines, range fencing, conducting campaigns against destructive rodents, eradication of poisonous plants and weeds, timber stand improvement, revegetation of lands as a part of a general soil erosion program, construction of reservoirs, insect, disease and pest control, reforestation, planting of trees.

More Drastic Plant Quarantine Urged

Vigorous support of Plant Quarantine 37 as administered by the bureau of Plant Quarantine, of the United States Department of Agriculture, was expressed by a majority of the nurserymen and plant importers represented at a public hearing before Lee A. Strong, Chief of the Bureau, in Washington, D. C., on October 25. Although the group were almost unanimously in favor of maintaining the guards against the introduction of foreign plant pests, a strong sentiment was expressed in favor of decentralizing the service to permit the inspection of importations of foreign plant materials at the principal ports of entry, rather than to concentrate them as at present in the Washington office. There were also those who would increase the number of individual specimens which may be imported by any one individual.

Among those recommending the establishment of detention gardens, in each of the several regions of the country where needed plant material from abroad can be grown and held

under observation, was Dr. Walter C. O'Kane, of the University of New Hampshire, and member of the Crop Protection Institute. Such gardens had been suggested in a letter from The American Forestry Association to the Bureau of Plant Quarantine, to which was added the suggestion that the Department of Agriculture maintain a corps of scientists throughout the world to study the action of plant pests upon American trees and shrubs planted under foreign conditions. As pointed out at the hearing by the representative of The American Forestry Association, an organization of this kind, studying and maintaining field stations in cooperation with each of the several foreign governments, would be of incalculable value in providing life histories and means of control for many plant pests should any of them slip through the base of inspection and quarantine to enter this country. A case in point, as indicated by him, is the Dutch Elm disease, recently established in several of the eastern States.

National Arboretum Assured

By an Executive Order signed by President Roosevelt on October 20, adequate funds are now available to complete the purchase of all property essential for the proposed National Arboretum. This action by the President revokes the Executive Order of July 27, and allocates \$336,000 to purchase the remaining lands and definitely preserve for arboretum use a tract of nearly 800 acres in the southeastern quarter of the District of Columbia. The tract provides a variety of soils and site conditions, which, according to Dr. Frederick V. Coville, acting director of the Arboretum, will serve as a place in which to carry out an extensive program of forest research, as well as a collection of growing trees and shrubs which promises to be of increasing value to the Nation.

Men of a Civilian Conservation Corps Camp recently established at nearby Fort DuPont will be detailed to the Arboretum area for preliminary work as rapidly as title is secured to

the lands. This will involve necessary clearing of the rough upland area, including removal of undesirable tree growth, and masses of vines which are injuring some of the existing trees. Wooded areas will be cleared only to the extent of removing dead and undesirable trees. A few old buildings on the property no longer of any value for occupancy will be removed. Existing open lands on which trees and shrubs will be planted will be plowed and harrowed preparatory to spring work, and some of the eroding areas will be graded.

The men will also construct trails for policing purposes in order to make all portions of the property readily accessible, and may start work for a small amount of drainage to remove surplus water which would otherwise be injurious to plant growth.

Plans for the construction of necessary buildings, for the planting of trees and shrubs, and for the use of existing tree growth are being prepared.



The Shell that Gets the Game

When you shoot Western Xpert shells *each shot is a hit* if you aim right. You may blame yourself for a "miss" but it can easily be the shells you are shooting. One reason for the effectiveness of the Xpert load is its patented Western Seal-Tite composition wad. The purpose of a shot shell wad is to prevent the hot powder blast from blowing past the wad into the shot pellets as they shoot through the gun barrel. When ordinary wads allow the hot gas to get past them there is a loss in velocity—melted, distorted pellets that fly crooked—often a missed bird or rabbit.

The Seal-Tite wads in Western Xpert, Super-X and Field shells keep all the energy of the burning powder *behind* the shot charge. Molded of a special composition, they are uniform in size, thickness and texture and they're *moisture proof*.

Mail the coupon for free leaflets describing the Seal-Tite wad—the Xpert shell—the famous Western Super-X long range load—and a free copy of the "How to Hit 'em" booklet. WESTERN CARTRIDGE COMPANY 1215 Adams St., East Alton, Ill.

Western
Xpert
SHOTGUN SHELLS

WESTERN CARTRIDGE COMPANY,
1215 Adams St., East Alton, Ill.

Gentlemen: Without charge, send leaflets on Seal-Tite wads, Xpert and Super-X shells. Also your booklet on shotgun shooting, "How to Hit 'em".

Name.....
Street or R. F. D.....
Town..... State.....



**THE
WOODMAN'S
"PAL"**

America's Most
Practical
Bush Hook
Light
Powerful
Safe

Indispensable
for C. C. C.
Camps, State and
Private Forestry
Work and Campers

**THE
VICTOR TOOL
COMPANY
READING, PA.**

Ask for
Catalogue
and Prices

Patents Pending

NOTICE!
PLEASE REFER TO THE IMPORTANT
ANNOUNCEMENT ON PAGE 575. IT
WILL SAVE YOU MUCH TIME AND
WORRY.

Outline Soil Erosion Service

In accordance with the desires of the President, the new Soil Erosion Service, recently set up in the Department of the Interior under a \$5,000,000 allotment from the Public Works Administration, will carry out a well rounded, coordinated demonstrational program which will employ all practical control measures in accordance with the adaptability of the land, using vegetative as well as mechanical methods. The service is headed by H. H. Bennett, with Dr. Walter Lowdermilk, well known research expert of the United States Forest Experiment Station, Berkeley, California, as vice-director.

Where mechanical methods are employed, an adequate structure of vegetative control measures will be superimposed upon the areas so treated in order to provide full stability to the physical structures involved, it was announced. A definite plan of land use will be developed in each area, based on the specific requirements of the soils, topography, rainfall and existing type of agriculture.

In carrying out these programs, the Soil Erosion Service will bring into cooperative action the best experts obtainable and the various interested state agencies and scientific organizations. Insofar as possible, the work will be conducted on unified areas, preferably confined to watersheds, in which the problem of destructive erosion over the entire area will be attacked through a completely coordinated program, taking into consideration all phases of the land use problem.

Soil erosion control work employing funds allotted by the Federal Emergency Administration of Public Works will fall into the following classes: (1) Erosion control activities to be carried out and administered by the Soil Erosion Service, in cooperation with state and local agencies and other Governmental organizations. (2) Soil erosion control projects submitted by other Federal agencies, and approved by and subject to the general supervision of the Soil Erosion Service. (3) Erosion control work to be conducted by state and other non-Federal agencies under the technical and planning direction of the Soil Erosion Service.

Ryerson Appointed Chief of Plant Industry

The appointment of Knowles A. Ryerson as Chief of the Bureau of Plant Industry, effective January 1, has been announced by Secretary of Agriculture Henry A. Wallace. Mr. Ryerson will succeed Dr. W. A. Taylor, who retires at that time after forty-two years' service with the Department of Agriculture, twenty of which have been as head of the Department's largest scientific bureau. Mr. Ryerson is now in charge of the Division of Foreign Plant Introduction.

Born in 1892, at Seattle, Washington, Mr. Ryerson received his degree of Bachelor of Science from the University of California in 1916, and an M.S. degree from the same university in 1924. He was with the agricultural extension service of the University of California from 1919 to 1925. Until 1927 he was in Haiti as horticulturist on the staff of the Agricultural Experiment Station, and later horticulturist with the Joint Palestine Survey Commission in Palestine and Transjordan, after which he became head of the division of Foreign Plant Importations in the Bureau of Plant Industry. During the war Mr. Ryerson served with the Forest Engineers Branch of the A. E. F. He was on the staff of agricultural damage investigations section of the American Peace Commission in 1919, and agricultural officer at the American embarkation center in France in 1930.

Dr. Taylor entered the United States Department of Agriculture as assistant pomologist in 1891, becoming pomologist in charge of field investigations in 1901. He was appointed Chief of the Bureau in 1913.

In 1900 Dr. Taylor served as an expert in horticulture with the United States Commission to the Paris Exposition and was a member of the International Jury on fruit trees and fruit. The *Chevalier du Merite Agricole* was conferred upon him by the French Government.

Florida Plans Extensive State Forests

A self-liquidating loan of \$8,000,000 has been requested by the trustees of the Florida Internal Improvement Fund, from the Federal Public Works Administration for the purchase of approximately two million acres of land in that State. The initial program having the approval of the Florida Board of Forestry contemplates the purchase of three tracts, aggregating 190,000 acres—one in Wakulla, Leon and Liberty Counties, another in Putnam and Clay Counties, and a third in Pasco and Hillsborough Counties. Plans being prepared by State Forester Harry Lee Baker, and F. C. Elliott, Engineer for the trustees of the Internal Improvement Fund, contemplate the establishment of state forests in all Florida counties.

The request is being made under authority of an Act passed by the recent State Legislature authorizing the trustees of the Internal Improvement Fund to negotiate loans from the Federal Government for the acquisition and management of lands for State Forests, and another Act directing the Florida Board of Forestry to examine and recommend suitable areas for State forest purposes, and to manage the lands after they are acquired.

In submitting the application for a loan the self-liquidating features of the forest areas under management were stressed, as was also the fact that these state forests will relieve unemployment by providing opportunities for gainful and useful work, and by conserving a renewable natural resource will restore values on depleted forest lands.

READ This Testimonial on the Famous INDIAN FIRE PUMP

CITY OF AUBURN, MAINE
G. E. BANCROFT Fire Chief
G. L. BARNES Deputy Chief
D. B. Smith & Co.,
Utica, N. Y.

Gentlemen:
I consider Indian Fire Pumps to be the most valuable accessory for all around use that we have in our fire fighting equipment. We have used them for the past two years on our outside work, that is for grass, brush and forest fires and have found them to be most effective. Their ease of carriage and the ease with which they are refilled wherever any water is available make them far superior to the old method of chemical tanks for this type of fire fighting. Their ease of operation is another feature which makes their use so effective, as the stream can be directed and it will penetrate brush and grass getting to the base of the flame where the fire is doing its most deadly work. The uses to which they may be put on outside work are manifold and mere words cannot express my admiration of them.

The many uses of these pumps are so varied that it is impossible to enumerate them all so I again say that they are the most usable all round pieces of equipment that we have.
Hoping these words will have some weight in inducing others to see for themselves the usefulness and worth of Indian Fire Pumps.

I am sincerely yours,
GEORGE E. BANCROFT,
Chief, Auburn Fire Department.

Manufactured by
D. B. SMITH & CO., 405 Main St.
Utica, N. Y.

from Chief Bancroft
of Auburn, Maine
Fire Department



PATENTED

FORM-FITTING, VENTILATED SHIELD GIVES A CONSTANT CIRCULATION OF AIR BETWEEN WATER TANK AND CARRIER'S BACK. IT PROTECTS THE BACK FROM THE COLD WATER AND MOISTURE IN THE TANK AND KEEPS THE BACK WARM AND DRY.

Let us send you descriptive matter and prices on our fire pump line.

When Writing Advertisers—Mention AMERICAN FORESTS

Ask the Forester?

Forestry Questions Submitted to The American Forestry Association, 1727 K St., N. W., Washington, D. C., Will be Answered in this Column. A Self-Addressed Stamped Envelope Accompanying Your Letter will Assure a Reply.

QUESTION: I have some cones from Blue Spruce trees. Please tell me what time of the year is best for planting them? I should also like to know whether to plant the entire cone or break it apart to get the seeds and then sow them individually. How deep are the seeds to be planted?—F. H. S., Wisconsin.

ANSWER: The cones should be left in a warm room for several days to permit the seeds to fall from under the cone's scales. Clean the seed from loose cone scales, rosin and wings, put them into a perforated tin can, to be stored in a cool cellar or dry garage for sowing in a carefully prepared garden bed early next spring.

The seedlings need to be carefully watered, shaded and cultivated for the first two years, when they may be set out in garden rows. After another two or more years the little trees may be set out in a permanent location. It is best to transplant them in the garden every two or three years to encourage a dense root formation such as will permit safe transplanting, but after they are in the permanent location they need not be transplanted again.

QUESTION: Why is the rapid growing black locust an extremely hard wood? Ordinarily rapid growing wood is very soft.—F. M., Mississippi.

ANSWER: This may be due to the fact that black locust is a legume, like clover, and has numerous root nodules which feed large quantities of nitrogen during the growing season and encourage the tree to rapidly develop wood structure.

QUESTION: How is the cubic content and the progress of glaciers measured?—W. E. B., Pennsylvania.

ANSWER: A comprehensive account of modern methods of glacier study is given in *Tycos* for July, 1928. *Tycos* is a quarterly magazine published by the Taylor Instrument Company, 95 Ames Street, Rochester, New York.

QUESTION: We have an ash tree on our lawn about thirty-five years old, that seems to be diseased, and if possible, we would like to save it. The wood swells until it breaks the bark, and when the wound heals, it is all rough and unhealthy looking.—L. S., New York.

ANSWER: Your ash tree may be attacked by the ash tree borer. The Missouri Botanical Garden describes this as a wasp-like insect with bright yellow legs, brown body and wings, which deposits its eggs on the bark in August and September. Upon hatching, the larvae, or worms, bore through the bark into the wood and emerge as full grown adult insects late in the summer of the following year. They damage the sap wood and heart wood so as to

weaken the tree and permit other wood-destroying insects and fungi to enter.

Fairly successful control is secured by the use of carbon tetrachloride, a colorless, non-inflammable liquid often used by cleaners and available at most drug stores. The carbon tetrachloride can be inserted into each hole with the aid of an oil can with a long bent spout, and must contact the grub or borer to kill it.

This may be supplemented by prodding the holes with a soft wire. Where the bark is broken clear it away with a sharp knife, cover the wood surface with shellac, and later with one or two coats of good paint.

That the tree may be in a vigorous condition to withstand the attacks of this or other insects, it should be watered freely and fertilized with bone meal or other good fertilizer.

QUESTION: Why is the tree growth on so many of the mountains of Western North Dakota confined to the north side? Can trees planted on the treeless south sides be expected to grow?—L. T., North Dakota.

ANSWER: State Forester F. E. Cobb, of North Dakota, suggests that this is due to the high evaporation of moisture on the south sides. The amount of rainfall in many parts of the West averages only about twelve inches a year, and the mountains are not high enough above the surrounding prairie to obtain much additional moisture. Therefore, it is improbable that trees planted there would be able to grow to any size. Under existing conditions, the few trees that grow on the south and west slopes have a tendency to crack and split due to the combination of hot sun and winter freezing. This frequently results in the exudation of resin and reduced value of the lumber.

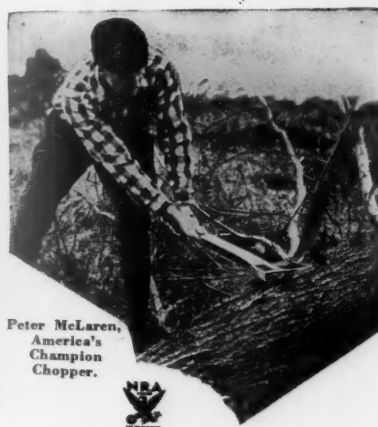
QUESTION: Is it a fact that when Virginia creeper and poison ivy begin growing up the trunks of trees it is an indication that the tree is decaying?—A. J. K., Ohio.

ANSWER: There is no reason to believe that either of these vines would select a decaying tree or would grow more successfully on one. However, they are parasitic in nature and steal sunlight from the leaves of the tree and thereby gradually weaken or even kill it, thus encouraging decay.

QUESTION: Is the red cedar, *Juniperus Virginiana*, the aromatic cedar used in making cedar chests?—L. B. M., Pennsylvania.

ANSWER: It is commonly used for making red cedar chests in the East, and for lining closets as well as for making pencils. Some of the Western junipers and cedars have come into the market to a considerable extent recently but the Eastern juniper still maintains an important place.

When Writing Advertisers—Mention AMERICAN FORESTS



Peter McLaren,
America's
Champion
Chopper.



"Whatever you demand of an AXE a PLUMB gives you more"

—says America's Champion Chopper

"WANT Speed? A Plumb is 20% faster than any other axe. Want a keen edge? A Plumb is electrically hardened and tempered clear through and ground to a precision edge that wears for a long time.

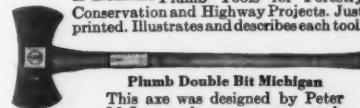
"Want easy chopping? A Plumb is perfectly balanced. It falls naturally. All the force of your blow drives the blade into the cut. And the blade is tapered to free itself without tugging and pulling.

"Want long life? A Plumb bit is tempered for a depth of one and one-half inches. It can be ground repeatedly without growing soft.

"Whatever you demand of an axe, a Plumb gives you more. I know because I've used them exclusively for years," says Peter McLaren, America's Champion Chopper. At all hardware stores.

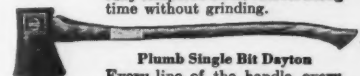
FAYETTE R. PLUMB, Inc., Phila., U. S. A.

FREE Write for your free catalog of Plumb Tools for Forestry Conservation and Highway Projects. Just printed. Illustrates and describes each tool.



Plumb Double Bit Michigan

This axe was designed by Peter McLaren, after numerous consultations with choppers in all parts of the country. Its keen edge, of carefully tempered steel, cuts for a long time without grinding.



Plumb Single Bit Dayton

Every line of the handle, every ounce of weight in the head of this axe is worked out to give that perfect balance so necessary to the axe user.

School of Forestry

University of Idaho
MOSCOW, IDAHO

Offers thorough training in Practical Forestry, preparing for Federal, State, and private work.

Four and Five Year Courses, leading to the degrees of Bachelor of Science in Forestry and Master of Science in Forestry respectively.

Opportunity is given to specialize in General Forestry, Logging Engineering, and Range Management.

Large logging and milling operations, important wood-working industries, also extensive Federal, State, and private forests, near at hand. Excellent opportunity for summer employment.

For further particulars address
FRANCIS G. MILLER, Dean

Public Works Administration Starts Roadside Improvement Movement

A roadside improvement movement, national in scope, has been launched by the Public Works Administration.

Provisions designed for protection of the natural landscape and eventual screening of highways by the planting of trees and shrubs are contained in a resolution adopted by the Special Board for Public Works and announced October 24 by Public Works Administrator, Harold L. Ickes.

The resolution also provides that so far as practicable and feasible the rights-of-way for highways constructed with loans or grants from Public Works funds shall be at least 150 feet wide and that foot paths parallel such roads. The resolution was so drawn that it would not delay or interfere with recovery highways now under construction.

Roadside improvements have many practical advantages aside from beautification. The planting of trees along roads provide shade and coolness in summer and protection from wind and weather in winter. Also involved are the benefits of reforestation and the prevention of soil erosion. It has been estimated that an extra twenty feet of right-of-way along all Federal highways would result in five acres of reforestation for every mile planted.

Wider rights-of-way and highway screening also would have the effect of removing, or at least restricting, signboards and other wayside eyesores which have destroyed much of the natural beauty of the countryside.

The resolution approved by the Special Board of Public Works calls upon the Chief of the United States Bureau of Public Roads to determine the scope and apply the means of effectuating the program.

Book Reviews

FORESTRY AND SCHOOL STUDIES, by E. V. Jotter. Published by the University of Michigan, Ann Arbor, Michigan. 125 Pages. Price \$1.00.

For many years forestry and conservation leaders have debated as to the best methods of teaching forestry in the public schools. Those who would present it as a separate, special subject are confronted with the reality that the school curriculum is already full, with teachers and pupils so overloaded that the idea seldom meets with enthusiasm. In contrast to this are the plans set forth by Professor E. V. Jotter in twenty forestry lessons presented in "Forestry and School Studies." Here one finds the more simple yet important phases of forestry outlined in a way that teachers can pass on to their pupils through such school subjects as arithmetic, reading, language, drawing, geography, history, and nature study.

In addition to suggestions as to how each lesson can be made to fit into a particular subject, the book is filled with specific references to many of the easily available and satisfactory books and bulletins. Supplementing this is a list of recommended publications.

With this book available, any teacher who wants to include forestry in some of the regular courses, or any Scout leader who desires to do a constructive job with his troop, can lay out a program that will receive an enthusiastic response.—G. H. C.

REPTILES OF THE WORLD, by Raymond L. Ditmars. Published by the Macmillan Company, New York. 409 pages; illustrated. Price, \$5.

A new edition, revised and containing new material, of what has become a standard in the study of the crocodilians, turtles and tortoises, lizards and snakes the world throughout. In its revision scientific names have been brought to the latest accepted use, and the tables of classification brought to date. Additions have also been made in the text, to include recent discoveries of importance. It contains nearly two hundred photographs, something indeed unique among books on the same subject.

And, like the first edition, the aim of the author to give in a popular manner a general survey of the reptiles of the world has succeeded magnificently. But in so doing he has lost none of its scientific appeal. It is a great work, a valuable work, a work that will live on.—E. K.

CAVE LIFE IN KENTUCKY, by Vernon Bailey. Published by the University Press, Notre Dame, Indiana. 256 pages; illustrated. Price, \$1.25.

Mammoth Cave, in Kentucky, has long been the best known cave in America, with a historic record of importance and interest as well as a prehistoric record as yet unread. Dr. Bailey, until recently with the United States Biological Survey, of the Department of Agriculture, reviews this history and prehistory in a straightforward and interesting style, and then delves into the region itself, its roads and its rivers, made especially attractive to the botanist and ecologist. He tells of scientific research into the secrets of the cave life, involving problems of geology, biology, and archaeology. A book of wide-spread interest, whether one has visited the great cave or not.—E. K.

★ Enjoy a 4 STAR HOTEL in New York ★



1400 large rooms...each with bath {tub and shower} servitor and radio. Single from \$2.50. Double from \$3.50.

JOHN T. WEST, Manager
Send for Booklet T

Hotel LINCOLN

44TH TO 45TH STREETS AT 8TH AVENUE · NEW YORK

★ for **BUSINESS**...1 block from Times Square, 3 blocks from 5th Ave. Underground passageway to all subways.

★ for **DINING**...3 fine restaurants to choose from—coffee room, tavern grill, main dining room. Breakfast from 30c Luncheon from 65c Dinner from 85c

★ for **RECREATION**...69 fine theatres within 6 blocks. 1 block from Broadway...4 short blocks to Madison Square Garden.

★ for **QUIET SLEEP**...Our 32 stories of fresh air and sunshine assure you quiet comfort at all hours.

New Quarantine to Exclude Dutch Elm Disease

A new quarantine designed to prevent further introductions of the Dutch elm disease from Europe has been announced by Secretary of Agriculture Wallace. The quarantine became effective October 31.

Under the new quarantine elm burl logs will be allowed entry under permit with regulations providing that they arrive at the port of entry free from bark so that no dangerous insect carriers of the fungus can be introduced with them. The regulations further require a hot water or other approved treatment to destroy any of the Dutch elm disease fungus that might be present in the logs. It is the Secretary's view that the quarantine will close as effectively as possible every avenue to the entrance of the disease but at the same time will not hamper any trade movement that could be permitted with safety.

Only recently was it discovered that elm burl logs, imported into this country from Europe for the manufacture of veneer, were infested. Every shipment since the discovery late in July was found to be more or less infested, especially with the elm bark beetle, an insect known to be an important means of spreading the disease in Europe.

In view of the important part which these elm bark beetles are said to play in spreading the fungus from dead or dying elm wood to living trees, the quarantine also stipulates that all lumber and timber, and crates, boxes, or other containers, and manufactured articles, derived from the wood of elm and related plants and entering this country from Europe, must be free from bark, since these insects are unlikely to live in wood, except where bark is present.

Purchase of 2,000,000 Acres of Forest Land Approved

Federal purchase involving 954,632 acres of forest lands in twenty States east of the Great Plains at an average cost of \$2.11 an acre, and totaling \$2,024,421, were approved by the National Forest Reservation Commission on October 30. The lands on which options had already been taken, will be added to government holdings in thirty-six existing National Forests and purchase units and will be administered as public forest by the Forest Service, United States Department of Agriculture. This together with an aggregate of 941,625 acres approved by the Commission at meetings held in June and August will make a total of 1,896,257 acres of forest land thus far purchased with the allotment of \$20,000,000 authorized by the President from Public Works funds. The earlier purchase averaged \$1.87 an acre and total \$1,763,963. With earlier withdrawals for land purchases, surveys and appraisals, there remains \$16,276,556 for additional land purchases during the life of the National Recovery Act.

Permanent administration and protection looking to management of the lands for timber growing, watershed protection, and other public forest purposes will be extended to the areas by the Forest Service. The new areas will be immediately available for improvement work by the Civilian Conservation Corps.

The larger purchases include 225,738 acres in the Apalachicola Purchase Unit, in Florida; 151,144 acres in the Monongahela National Forest, West Virginia; 75,320 acres in the Chickasawhay and 94,695 acres in the Leaf River Units, both in Mississippi; 68,480 acres in the Manistee Unit in Michigan; and 67,952 acres in the Kisatchie and 60,423 acres in the Vernon Units, both in Louisiana.

The exterior boundaries of the Cumberland Unit, in Kentucky, were extended to include an additional 33,000 acres, but not far enough to include Cumberland Falls. Other boundary enlargements to the Wambaw Unit, in the Coastal region of South Carolina, and the Apalachicola Unit, in western Florida, were approved by the Commission. Due to enlargement of the Wambaw Unit, the neighboring Black River Purchase Unit in South Carolina, tentatively established several years ago, will be abandoned.

Two additional proposals of sale were considered and the Forest Service was requested by the Commission to make examinations and report at an early meeting. First of these was the Battell Forest, consisting of about 22,000 acres of productive forest land under manage-

ment, situated north of the Green Mountain purchase area, in Vermont. It was offered the Commission by President Paul D. Moody of Middlebury College at an average price of \$35 an acre. The offer was supported by a delegation consisting of Governor Stanley C. Wilson, of Vermont, Robert M. Ross, former Vermont State Forester, and now Secretary of the Connecticut State Forest and Park Association; Philip W. Ayres, of the Society for the Protection of New Hampshire Forests; and J. J. Fritz, former Supervisor of the White Mountain National Forest, and now Director of the Battell Forest.

The other is known as the Tionesta area within the boundaries of the Allegheny National Forest, in northwestern Pennsylvania. This includes over 40,000 acres, comprising the largest remaining stand of virgin hemlock and hardwood forest between the Adirondacks and the southern Appalachians, and offers unusual opportunities for scientific research, education and inspiration. F. R. Cope, Jr., of Dimock, Pennsylvania, and Carl P. Birkinbine, Secretary of the Pennsylvania Forestry Association, urged the purchase of at least 500 acres of virgin timber in the heart of the area, with options to buy a substantial portion of the remainder after the timber has been cut under Forest Service regulations. Pointing to the large public interest in this timberland, and its possibilities as a wild life refuge, they pledged the support of the Pennsylvania Forestry Association to secure donations with which to buy additional acres of standing timber to present to the Government. They expressed the hope that this might serve to materially increase the area of virgin timber to be held within the Allegheny Forest.

The meeting was attended by all the members of the National Forest Reservation Commission including Secretary of War Dern, Secretary of Interior Ickes, Secretary of Agriculture Wallace; Senators Keyes, of New Hampshire, and George, of Georgia; and Representative Doxey, of Mississippi, and Clarke, of New York. John E. Burch of the Forest Service is secretary.

The areas approved by the Commission included 4,379 acres at a cost of \$18,948 in the New England Region; 198,001 acres in the Appalachian Region, to cost \$502,713; 581,778 acres, costing \$1,230,810, in the Southern Pine Region; 39,579 acres at \$82,582 in the Ozark Region of Arkansas, and 130,895 acres to cost \$189,104 in Michigan, Wisconsin and Minnesota.

The
HKP
FORESTER
No. 3
(McKenney Type U. S. Pat. No. 1607470)



Easily Cuts Two-Inch Standing Green Wood

For reforestation work, cutting brush, roadside stripping, trail clearing, general improvement cutting in stands of all ages.

Patented slide shift power slot makes possible a powerful tool without excessive weight. Guaranteed to cut 2-inch standing green wood. Simple, fast, safe. Write for folder showing tool in use and full details.


MADE BY
H.K. PORTER INC.
EVERETT MASS. U.S.A.
(Ask your hardware jobber)

HARVARD MILLS

Jacket of All Trades


Made for active, outdoor men. Firm, water-resistant outer cloth with soft, wooly, inner lining all in one fabric. Neat, well tailored, Bruin patented interwoven lining does not pull out. **Guaranteed satisfactory.**

Practical
Good Looking




Style 208
\$6.00
Coat style with roll collar—buttons or zipper.

Warm
Strong
Inexpensive



Style 206
\$6.00
Jacket style without collar—buttons or zipper.




Style 202
\$3.50
Sleeveless vest. High neck. Zipper or buttons.

Winship, Bolt & Co., Wakefield, Mass.

Send "Jacket-of-all-Trades" in Style _____
with Zipper _____ Buttons _____ Size _____
Enclosed find check _____ M. O. for \$ _____
Send sample of fabric _____

The Tower of Hospitality



MORRISON HOTEL

CHICAGO

Bright, Inviting Rooms
Quick, Cheerful Service
Fine Garage Facilities
In the Heart of the Loop
Only \$2.50 up with Bath

The New York State College of Forestry

SYRACUSE, N. Y.

Undergraduate courses of four years are offered in forestry leading to the degree of Bachelor of Science. There is also opportunity for graduate work in several branches of forestry leading to advanced degrees.

The Marshall Memorial science building, approximately 20,000 acres of experimental forest lands in various sections of the State and the Roosevelt Wild Life Experiment Station at the College afford excellent opportunities for practical work in forestry.

Modern plants for instruction in pulp and paper making, in kiln-drying and timber treating and a portable sawmill are features of this completely equipped institution. Catalog mailed on request.

SAMUEL N. SPRING, *Dean*

A LIVING TREE THAT TELLS AN EVERLASTING STORY

Christmas, the festival of joy for children, approaches on swift wings. Days of anticipation—nights of happy dreams—fill their waking and sleeping hours. This year, why not let them take an active part—know a new joy in their Christmas tree?

Make it a *living* tree and trim it—or let them trim it—to tell the Christmas story. Then, not only will their Christmas tree outlive the holiday season, but it will be green and flourishing when the holidays roll round next year, ready to serve again—an evergreen symbol of joy and of life eternal. And the tree—little or big—may happily tell the beautiful story of the New-born Christ. And this can be done with little trouble—as simply or as elaborately as is desired.

The idea is illustrated here in the photograph of the living tree sent by Mrs. Alma Higgins, of Butte, Montana, who has consistently promoted it for several years. At the top of the tree, of course, is placed the Star. Just below this, three or five angel figures to represent the Heavenly Host. Then, below these, and toward the center of the tree, is placed the group representing the Holy Family, with Mary the Mother, kneeling beside the tiny Saviour of the World. On lower branches are placed the Adoring Shepherds with their flocks, and on branches coming from the East are seen the Three Wise Men. The lower part of the tree is filled with figures of tiny dolls dressed in costume to represent the various nations, to carry the thought that the Christ-Child loved and came to save the chil-

dren of the whole world. Below these come the animals and fishes—not to be left out of this universal picture. Tinsel and lights add to its brilliant beauty and set off the figures in this sweetest story of all that may be told in pageant form.

The figures may be cut from pictures and mounted on pasteboard and held in place by threads. Or, the little figurines may be bought

most reasonably today—many of them being available in the dime stores. Some people prefer to obtain the tiny dolls, and then dress them in character. And the youngsters love this, for they can then incorporate their own ideas of proper dress of the time as shaped by their Bible studies. Incidentally, the writer knows from personal experience that this is quite as fascinating to the older children as well! The Three Wise Men can be made quite gorgeous with scraps of radiant-colored velvet, adorned with gold thread and shining beads, then mounted dignifiedly upon their camels, to take their "highlight" position in the picture drawn by the living tree. Of course, if it is preferred, there are



most beautiful and elaborate sets to be obtained of the Manger and the whole group of figures, and these may be set very effectively at the foot of the living tree, flanked by candles or with an indirect light shining upon it, so that all during the holy season attention is focused instantly and the heart of the beholder is happily flooded with the sweet and glorious meaning of the Christmas-tide.

Lumber and Timber Products Industry Adopts Cost-Protection Prices and Fair Trade Practice Rules

Minimum cost-protection prices and rules of fair trade practice have been approved by the Lumber Code Authority, thus providing a solution for the two major problems which have absorbed the interest of the forest products industries and the lumber consuming public.

The decisions were predicated upon the work of nearly one hundred of the industry's foremost experts who have been studying these problems for months.

The cost-protection prices do not, it was explained, "fix" the price of lumber; they merely establish a bottom for the market, a level below which prices will not be permitted to sag. While some items are a trifle higher and some a trifle lower than the current market, the general average is about the same as the wholesale prices now being paid. The idea

behind the establishment of cost protection was to enable operators to observe code wages and hours. While the Code authorizes prices which would protect the full cost of production, the lumbermen decided to forego a measure of this protection rather than disturb present market relations.

The cost-protection prices established by the action of the Authority will become effective ten days after publication. Copy is now in the hands of the printer, and the work will be rushed to completion as quickly as possible. Although prices were figures on an "f.o.b. mill" basis, a formula was drafted prescribing for each branch of the industry the method by which "delivered prices," or prices including freight to destination, should be computed.

When Writing Advertisers—Mention AMERICAN FORESTS

THE FOREST OF BUSSACO

(Continued from page 552)

"Reader, thou standest upon holy ground
Which Penitence hath chosen for itself,
And war disturbing the deep solitude
Hath left it doubly sacred. On these heights
The host of Portugal and England stood,
Arrayed against Massena
. Ill he knew

The Lusitanian spirit! Ill he knew
The arm, the heart of England! Ill he knew
Her Wellington! He learnt to know them here,
That spirit and that arm, that heart, that mind,
Here on Bussaco gloriously display'd."

At the time of the suppression of the monastery in 1834, there were twenty-four monks, two of whom, wishing to end their days in the forest, were allowed to remain. The property now belonged to the government and it was during the nineteenth century that many of the decorative features in the woods were added. Conspicuous among them is the stairway which descends a steep slope in a succession of landings on both sides of a channel, strewn with rocks and green with ferns, down which the water runs. There is much water elsewhere throughout the forest — the pool mentioned above, the brook which feeds it, and springs.

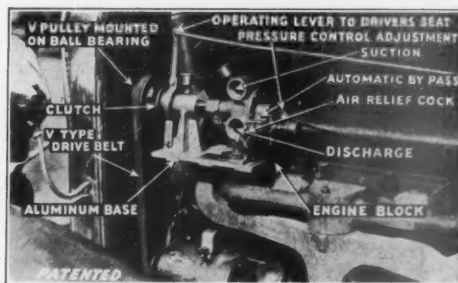
The palace was begun in 1888 as a summer residence for the royal family. Here the architect, Manini, revived the native style that flourished in the early sixteenth century when Portugal was one of the great powers of Europe. The Manueline style is mainly conspicuous for its ornament which, although lacking in logic and restraint, is full of richness and variety. At Bussaco the carved columns and moldings, the frescoes and paneling, the battlemented parapets and the highly decorated spire topped by the armillary sphere of King Manuel, lend the building its greatest interest, and a character more suggestive of a palace than that of some bigger and better known residences of royalty. Tiles, too, are here in abundance—not the tiles of an early period such as are in the little chapels of the monks, but blue tiles in the manner of the eighteenth century. They line the arcaded verandah and the entrance hall. On the former are scenes from the works of three great Portuguese writers, Camoens, Gil Vicente and Bernardin Ribeiro, those from Camoens' *Lusiad* representing events of Vasco de Gama's voyage to India. In the entrance hall are scenes from the Peninsular War, one of them showing Wellington at the battle of Bussaco.

The palace was never wholly finished and was used little by the royal family. In 1909 it was opened as a hotel. Although the most noteworthy modern building in Portugal, one cannot help regarding it as an intrusion; after all, it is the monks and their forest that have given Bussaco its distinctive character.

The summer season at Bussaco affords a great opportunity to see rural Portuguese on a holiday. There are special rates on the railroads, busses and cars. The heavy work of bringing the liquid refreshment is left to the oxen. Those who have vendors' stands arrive the day before the season opens and the spaces near the hotel and the Coimbra gate are filled with their impedimenta. The latter include the babies who, when the wares are unpacked, are deposited for safe-keeping in the empty boxes. The chief thing that can be bought is pottery of the cheaper type, many pieces costing less than five cents, but there are some very attractive and beautiful forms and colors.

Forest Fire Trucks Are Not Expensive

This cut shows a type of Fire Truck being used more and more generally. It has a **PANAMA** pump on the motor and a 100 gallon removable tank on the body of the truck. These Trucks have the advantage of being able to get through the woods rapidly, enabling them to reach a fire before it has gained much headway. The water carried on the truck is usually sufficient to extinguish the fire and if not, more can be taken from any convenient source, with the **PANAMA** pump.



The **PANAMA** pump will deliver a large volume of water at a high pressure or the discharge can be reduced to a small spray for knocking down and stopping the spread of ground fires.

The detail on the left brings out the simplicity of the **PANAMA** pump. It is rotary type, all bronze construction, including the gears and shaft, it has only one constantly moving part, the V pulley, which is mounted on **BALL BEARING**. When the hood of the truck is down the pump is completely protected from injury. The pump does not interfere with the operation of the motor.

Let us tell you how inexpensive it is to change your pick-up body truck to a highly efficient Fire Truck.

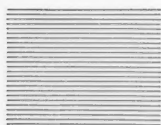


Manufactured by
Panama Pump Company

PANAMA CITY, FLORIDA

HAPPY DAYS AND THE C. C. C.

HAPPY DAYS is the authorized weekly publication of the Civilian Conservation Corps. If you're interested in "the greatest of all peacetime movements"—the President's reforestation program—read *Happy Days* every week. Send One Dollar for a six months' subscription, or 25 cents in stamps for six recent issues.



HAPPY DAYS

Authorized Weekly Publication
of the Civilian Conservation Corps

1010 National Press Building, Washington, D. C.



ASSOCIATION PLAYING CARDS FOR CHRISTMAS

\$1.50 Per Set of 2 Decks

Send your order today

The American Forestry
Association
1713 K Street, N. W.,
Washington, D. C.

ORDER YOUR BINDER NOW FOR 1934



\$2.50 Each

Order yours today and protect
your next year's Magazines

THE AMERICAN FORESTRY ASS'N.

1713 K STREET, N. W.,
WASHINGTON, D. C.

Although a National Forest Bussaco, in character and methods of administration, is more like the national monuments of the United States. The woods have been under the care of Portuguese Forest Service since 1856. There is a forester in charge, and under him nine forest guards. The latter live in cottages distributed through the woods—modern structures for the most part but unobtrusive. The general policy is that of preserving the character of the place and using the woods as an arboretum. No trees are cut except when their condition necessitates it. New ones are constantly being planted. Roads and paths are kept in excellent condition.

The State also owns land outside the Cercal, on the east slope of the ridge, and a beginning has been made in the reforestation of this area.

Bussaco has received varying treatment in the guidebooks, some giving it scant attention and others considerable prominence, even to

the extent of including a map of the Cercal. Descriptions of the forest, however, whether in guidebooks or books of travel, are marked by that unconcern for fact that often seems to characterize writing of this sort. In print the enclosure grows to four times its size, its distance from Lisbon shrinks to one tenth of what it is, and dates move forward and backward fifty to two hundred and fifty years.

So far, Portugal has assumed little importance in the eyes of tourists and, as far as Bussaco is concerned, this is doubtless just as well. The prospect of the forest as a popular show place is rather disturbing. Perhaps the country will always escape being overrun by visitors for it offers comparatively little for sightseeing in the customary sense of the word. Its scenery, however, is perhaps unsurpassed of its kind in Europe, and among the many beautiful spots Bussaco takes high rank. May it long enjoy the peace that possessed it in the days of the Barefoot Friars.

The National Community Christmas Tree

President Roosevelt has been invited to extend a Christmas greeting over a nation-wide radio hook-up in connection with the tenth annual lighting of the National Community Christmas tree in Sherman Square, east of the White House in Washington. The original thirty-five foot spruce tree was a gift to the nation from the Amawalk Nurseries, through The American Forestry Association, and was accepted by President Coolidge on Christmas Eve, 1924. This year's lighting ceremony will occur at 5:00 p. m. on Sunday evening, December 24, and will be preceded by a half hour concert by the Marine Band. Boy Scouts and Girl Scouts will assist. Before Senator William H. King, of Utah, Chairman of the National Committee, calls upon President Roosevelt for the Christmas message, carols will be sung by several Washington Glee Clubs and choirs.

Last year over one hundred and twenty cities and communities across the country timed the lighting of their tree with the radio announcement of the President's action in connection with the National Christmas tree.

The National Committee which sponsors the ceremony consists of Honorable William H. King, Chairman; Mrs. Jonathan Buckley, President, Garden Club of America; Arno B. Cammerer, Director, National Parks, Buildings, and Reservations; Honorable Arthur

Capper, United States Senate; B. W. Clark, President, Society for Electrical Development; Honorable Frederic A. Delano, National Capital Park and Planning Commission; Mrs. Frederick Edey, President, Girl Scouts of America; Robert Fechner, Director, Emergency Conservation Work; Colonel U. S. Grant, 3d, Army War College; Walter W. Head, Boy Scouts of America; Harry L. Hopkins, Federal Emergency Relief Administration; Honorable Harold Ickes, Secretary of Interior; Mrs. John Alexander Jardine, President, National Federation of Music Clubs; Dr. Hayden Johnson, President, Board of Education of the District of Columbia; Dr. Joseph Lee, President, National Recreation Association; William Montgomery, Director, National Capital Civic Fund; Mrs. Mary T. Norton, United States House of Representatives; Newbold Noyes, Community Chest; Mrs. Grace Morrison Poole, General Federation of Women's Clubs; George D. Pratt, President, The American Forestry Association; Honorable Luther H. Reichelderfer, Commissioner of the District of Columbia; Honorable Daniel C. Roper, Secretary of Commerce; Robert L. Vann, Special Assistant to the Attorney General; James G. Yaden, Community Center Council. Mrs. E. K. Peebles, Director, Community Center, is Chairman of the Executive Committee.

Representative John D. Clarke Killed

Representative John D. Clarke, of New York, co-sponsor of the Clarke-McNary Act, and a member of the National Forest Reservation Commission, was killed in an automobile accident near Delhi, New York, on November 5.

Born in Delaware County, New York, in 1873, Representative Clarke had a colorful career as lawyer, mining executive, farmer

and politician. He received a degree of Doctor of Philosophy from Lafayette College and did graduate work at Colorado College. His political activities began when he was elected to the sixty-seventh Congress. As a member of the National Forest Reservation Commission, he was influential in developing the forest land acquisition policies set forth in the Clarke-McNary Act.

New Officers Nominated

Nominations for officers of The American Forestry Association, to be elected by referendum ballot during December, have been completed by the Committee on Elections and filed with the Secretary of the Association for the preparation of the ballot which will be mailed each member on December 1. The ballot will include nominees for President, twenty-one Vice Presidents, Treasurer, and three Directors. All except the Directors, who will be elected to five year terms, will serve for one year, or through 1934. The three vacancies on the Board are occasioned by the expiring terms on December 31, 1933, of Mr. Louis J. Taber, Mr. Joy Morton and Colonel William B. Greeley.

Members of the Nominating Committee for 1934 are: Shirley W. Allen, of Michigan,

Chairman, Mathew L. Rue, of the District of Columbia, and Scott Leavitt, of Montana. The candidates nominated by the Committee are:

For President:

George D. Pratt, New York City (incumbent).

For Directors:

Colonel William B. Greeley, Seattle, Washington, Secretary-Manager, West Coast Lumbermen's Association.

Thomas P. Littlepage, Washington, D. C., Past President, District of Columbia Chamber of Commerce.

Willoughby G. Walling, Chicago, Illinois, Chairman of the Executive Board of the Izaak Walton League of America.

For Treasurer:

George O. Vass, Washington, D. C., Vice President, Riggs National Bank.

For Vice Presidents:

Thomas C. Spalding, Dean of the Department of Forestry, University of Montana, Missoula; George H. Cecil, Executive Secretary, Los Angeles County Conservation Association, Los Angeles; Charles W. Saunders, Architect, Seattle, Washington; Dr. Mary H. Layman, San Francisco; Dr. Arthur M. Morgan, Director, Tennessee Valley Authority, Washington, D. C.; M. J. Fox, Michigan Conservation Commission, Iron Mountain, Michigan; J. N. Darling, Cartoonist, Des Moines, Iowa; Thornhill Broome, Chicago, Illinois; Mrs. Jonathan Buckley, President, Garden Club of America, New York City; Francis R. Cope, Jr., Member Board of Directors of

Pennsylvania Forestry Association, Philadelphia; Royal S. Copeland, New York City, United States Senator; Mrs. Russell William Magna, President-General of the National Society D. A. R., Holyoke, Massachusetts; Mrs. Anna B. Scherer, Greenwich, Connecticut; Frank C. Littleton, Aldie, Virginia; L. F. Loree, President, Delaware and Hudson Railroad, New York City; Cully A. Cobb, Editor, *Progressive Farmer and Southern Ruralist*, Atlanta, Georgia; Mrs. William L. Wilson, Chairman of Conservation, General Federation of Women's Clubs, Jacksonville, Florida; C. C. Sheppard, President, National Lumber Manufacturers Association, Clarks, Louisiana; E. O. Siecke, State Forester, College Station, Texas; L. E. Freudenthal, American Farm Bureau Federation, Las Cruces, New Mexico; W. J. Kelly, President, Consolidated Naval Stores, Jacksonville, Florida.

MICHIGAN ELK*(Continued from page 539)*

were killed by hunters who apparently mistook them for deer. The following spring some of the cows became very annoying to farmers located near the Forest and two of these had to be removed from the vicinity. It is too early to judge the success of this planting but from reports available the remainder of the herd are apparently happy in their new location.

During 1918 there was a herd of about twelve animals at the Crawford State Game Refuge, in Crawford County, in a small enclosure where they could be observed by the public without too much inconvenience, and where neither range, cover nor feed was suitable. These animals were recruited from various city parks and other public institutions. This herd was broken up and four animals, together with three more which were secured from city parks, were removed to the vicinity of the Pigeon River State Forest, in the north part of Otsego County.

From the first, this herd seemed to thrive and were content to remain in the vicinity in which they were liberated. From this small beginning a most satisfactory herd has resulted in the few years since their release. Several attempts have been made to estimate the number of animals in the herd, and as many results have been obtained. While the estimates vary in number from two hundred to four hundred animals, it will be readily conceded that the increase has been quite satisfactory when the small number of the original herd is considered.

There are some people who believe that part of the Pigeon River herd consists of animals which migrated from the Turtle Lake country. The distance is within reason, but reliable information which would substantiate such a theory is lacking.

The answer to the question as to why the apparent success of this particular herd may be as follows: Suitable range; feed and cover; protection; law enforcement and observance.

The preferred range is a tract of cut-over hardwood hills and pine lands consisting of some thirty thousand acres, and lies between two famous trout streams, the Sturgeon and Pigeon Rivers. The hardwood land is rough and covered with a second growth of hardwood timber, mainly sugar and red maple, elm and basswood, poplar and fire cherry, and varies in stocking from sparse to well stocked, depending usually on how hard the land was burned by fires which followed logging operations. The open spaces in the hardwood are grown up to wild grasses which

furnish an abundance of forage until the deep snow arrives.

The pine land is more or less open, with a scattering of jack pine and occasional white pine and Norways. The elk use these plains during the summer months although there is little available feed, owing to the scarcity of suitable grasses.

Little difference is observed in the seasonal range except in late winter. Spring, summer and fall finds them in the grassy areas, and in close proximity to water. Early winter does not change their range greatly as they are still able to obtain the wild hay without much difficulty, although it is apparent that the animals browse more and more as the season progresses. As the winter advances and snow becomes deeper and more firmly packed, grass becomes less available and it is evident that there is a concerted movement among the herds.

It is a well known fact that the elk herds in the western states observe seasonal migrations which are easily explained by those who are familiar with their habitat. The animals are literally forced into the valleys by severe storms and heavy snows which occur in the higher altitudes, and the line of least resistance in their case leads ever down and terminates in the lower valleys.

The case is different in Michigan in that the area used is comparatively small, and there is no noticeable variation in the depth of snow. There may be some question as to whether the roving habit of the Michigan elk at this time is due to instinct developed through ages of existence in their former habitation, or whether it is just a movement in search of feed, prompted by hunger. However, they finally settle down, more or less, in the hardwood areas in which red maple is the prevailing species, where they spend the balance of the snow period. Spring again finds them in the grass country.

The subjects of feed and cover go hand in hand. The best growth of grass is found in areas where there is the least cover, and winter browse is found in greater abundance in areas which provide but little in the way of grazing. Although the main food supply in summer is grass, these areas provide sufficient cover for protection while the trees are in foliage. In winter the heavily wooded ravines provide suitable protection from storms, and an abundance of feed.

It is my opinion that the transplanting of native species can be successfully accomplished if, and where, and when all the controlling factors are in harmony, as evidenced by the results of the planting of elk in Michigan.

Why Freeze?**OUR WINTER WEIGHT
Made-to-Measure Uniforms**

**JACKETS
BLOUSES
MACKINAWS
CRUISER COATS**
Are mighty comfortable companions

By ordering now you'll have suitable clothing for that first cold snap.

Write for Sample Fabrics and Prices

The Fechheimer Bros. Co.
Uniforms for Over 45 Years
4th & Pike Cincinnati, Ohio

CHRISTMAS GIFTS

of real value

Handbook of Trees

Photographic illustrations enable one to identify all of the trees east of the Rocky Mountains and north of the Gulf States at any season.

\$8 and \$10, according to binding.

American Woods

A collection of actual wood sections (showing end, quarter and flat grains of each species), with text, telling uses, properties, distribution, etc. The plates in which the thin sections are mounted are removable for examination.

Issued in 14 volumes, 25 species in each. \$10 and \$12.50 per vol., according to binding. Send for list of species.

ROMEYN B. HOUGH CO.
LOWVILLE, N. Y.

University of Maine

Orono, Maine

The Forestry Department offers a four year undergraduate curriculum, leading to the degree of Bachelor of Science in Forestry.

Opportunities for full technical training and for specializing in forestry problems of the Northeast. Eight-weeks' camp course required of all Seniors in Forestry, in practical logging operations, on Indian Township, Washington County, Maine, under faculty supervision.

For catalog and further information address

**FORESTRY DEPARTMENT,
University of Maine
ORONO, MAINE**

TOOLS

Planting Irons, Fire Rakes, Swatters, Brush Hooks, Hoes, Bark Blazers, Thinning Axes and Special Tools for Land Owners, Timber Growers, Turpentine Operators, etc.

THE COUNCIL TOOL COMPANY

Makers

WANANISH, N. C.

TOOLS For America's Emergency Conservation Program

THE COUNCIL TOOL CO.

Page 572

HESTER PLOW CO.

Fourth Cover

Fire Line Plows

PANAMA PUMP CO.

Page 569

Automobile Fire Pump

PLUMB, INC., FAYETTE R.

Page 565

The famous PLUMB AXE.

PORTER, INC., H. K.

Page 567

Forester Pruning Tool No. 3.

SMITH & CO., D. B.

Page 564

Indian Fire Pumps

VICTOR COMPANY, THE

Page 564

One-Hand Bush Hook

WARREN TOOL CORP.

Page 561

Forestry Tools of Every Description

FOREST INDUSTRY CHARTS CONSERVATION COURSE

(Continued from page 541)

industrial depression; (c) that by legislation reasonable flexibility in public timber sale contracts should be provided in order to give purchasers relief from heavy losses during the present depression. The Committee further recommended that sustained yield management as now practiced in the National Forests and in some of the Indian reservations should be extended to all federal forests where such management is practicable.

On the question of public acquisition of forest land, the Committee endorsed the Forest Service proposal calling for a program that would eventually bring under state and federal control and management some 224 million acres in the United States. This is in line with the recommendations made in the Copeland Report recently transmitted to Congress. The Committee gave its endorsement to more rapid acquisition through cash appropriations, or through payments in bonds, certificates or otherwise. The Committee further favored the transfer of the revested land in the original Oregon and California Railroad and Land Grant to the Forest Service to be managed as a National Forest.

Committee on Taxation. The Committee was unanimous in holding that the initiative in and responsibility for forest tax reform must be assumed and vigorously administered by public agencies; that the most important single measure in placing forests on an equality with other properties in respect to taxation is to organize them on sustained yield bases so that income will be realized annually or periodically; that federal action is required to stimulate states to recognize the need of correcting existing situations in regard to forest taxation; that in regions where local government is heavily dependent on forest taxation, such as National Forest communities, a method should be worked out whereby the annual federal contribution will be more dependable and substantial; and that there should be available to the private timber owner appropriate federal sources or agencies whereby necessary forest credits may be obtained to insure continuous forest productivity. In regard to the last mentioned proposal, the Committee created an interim committee to prepare for consideration at the December conference a definite plan of federal forest credits for the timber industries. On the question of endorsing a proposal to approve the yield tax, the Committee was divided, seven members favoring and nine opposing it. A proposal by Mr. Black of a plan to permit timber owners for indefinite periods to borrow money at low rates of interest from an appropriate federal agency was approved by eleven members of the Committee and opposed by five members.

Committee on Public Cooperative Expenditures. If Code requirements for conservation and sustained forest resources are to be successfully carried out, the Committee was of the unanimous opinion that increased public aid in fire protection should be provided and that this aid should be up to fifty per cent of the money needed for protection. It recommended that the present federal contribution of \$2,500,000 annually under the Clarke-McNary Act be increased to \$10,000,000, or one-half the estimated total cost of protection outside of the federally owned forests.

The Committee was also unanimous in holding that serious attacks by forest insects and diseases call for prompt and effective dealing by trained personnel and involve cooperation between the Federal Government, states and private land owners on principles similar to those covering forest fire protection. The Committee endorsed the recommendations of the Lumber Industry and the Forest Service for

the continuation and development of forest research as authorized in the McNary-McSweeney Act and that the urgency of much interrupted work requires emergency action through appropriate allotment of funds. The study of the Copeland Report for more specific guidance in research that will better promote the effectuating of the Lumber Code was endorsed. A proposal that the Government of the United States, being the largest single owner of timber, should set an example in purchase specification of lumber and forest products received the unanimous approval of the Committee, as did a proposal that the Federal Government should match on a dollar for dollar basis the forest extension contributions of states and of political subdivisions thereof whose forest extension activities constitute part of a state-wide plan. This proposal included a recommendation that the present federal contribution authorized for farm woodland extension be increased from \$100,000 to \$250,000 annually.

Committee on Emergency Timber Salvage. Where timber is damaged by fire, insects or disease to an extent that it cannot be salvaged in the usual course of operations, and where community interests in the form of loss of taxes, employment, etc., are threatened, the Committee held that it is in the interest of conservation and public welfare that the need of prompt salvage be recognized in the allocation under the Code of production quotas, and that preference be given such situations by the Federal Government.

Committee on Farm Timberlands. Whatever organization is set up under the Lumber Code for conserving forest resources and bringing about the sustained production of timber, the Committee declared, should include in its jurisdiction farm woodlands and should give adequate representation to farm woodland owners.

In its final session, the conference appointed an executive or interim committee to function during the period until its final session in December when definite action will be taken on various proposals. Members of this committee are: Henry S. Graves of the Yale Forest School, Chairman; Wilson Compton, Secretary-Manager, National Lumber Manufacturers' Association; Earle H. Clapp, Associate Forester of the United States Forest Service; Franklin Reed, Secretary of the Society of American Foresters; Ovid Butler, Secretary, The American Forestry Association; John W. Blodgett, National Lumber Manufacturers' Association; Fred Brenckman, National Grange; Chester Gray, American Farm Bureau Federation; and Charles W. Boyce, American Pulp and Paper Association. When the conservation program is brought into definitely drafted form at the December conference, it will be transmitted to Secretary Wallace and President Roosevelt and if approved by them will become binding under the Industry's Code of Fair Competition.

The proposals of the forest products industries were submitted to the conference at its open session on October 24 by Dr. Compton who stressed the fact that "this is an industry undertaking. It will be so administered." He reiterated an assertion previously made that "no industry may permanently thrive which is continually destroying or witnessing the destruction of the sources of its own livelihood. No rehabilitation of the forest products industries will be either complete or lasting which does not effectuate the protection and maintenance of the forest resource itself." He emphasized the conviction that the forest industries rehabilitation and its perpetuation of its own resources are possible if undertaken con-

currently with the cooperation of industry and federal and state governments. Public cooperation, he declared, must be substantial, dependable and enduring. "The most useful practical result of these conferences will be such action as may aid the forest products industries in their logical local or regional divisions to establish, First, satisfactory standards, and, Second, a system of effective machinery through which desirable standards step by step, as economic conditions permit, may be converted into established forest industry practice.

"Thus may the industries eventually achieve—in the terms in which the Code was submitted to the President—rehabilitation of the lumber and timber products industries, conservation and sustained production of forest resources, sustained-yield forest management and permanent sources of employment.

"If, as we believe, forestry, although a matter of national interest, is a matter of local application, it may be said that our sound objective is more the establishment of a 'system' of forest conservation than the determination of the local details of its application. Accordingly the industry proposals in general terms will be separately supplemented in terms of their specific adaptations to each of the principal divisions of forest industry participating in this conference."

Following Dr. Compton, E. A. Sherman outlined the conditions which the Forest Service considers essential for the perpetuation of the forests and the industry. These, he said, are based on the comprehensive investigation recently made by the Forest Service under the congressional resolution introduced by Senator Copeland and published as a Senate Document entitled "A National Plan for American Forestry." "The nation has reached the stage in its historic development," he declared, "when retrenchment in unchecked exploitation of natural resources, conservation and planning seem to be imperative. The era of rapid expansion, exploitation, and lavish destruction of resources is definitely at an end. A new age calls for new policies and new measures. The governmental land policies of the past which, in keeping with the spirit of the earlier days, have been shaped by a desire to stimulate agriculture, lumbering, mining and other developments at whatever cost to the public welfare is now giving way to a new idea of conserving the remaining resources for the permanent good of all the people and the industries concerned. Planned use of these resources is to take the place of careless exploitation.

"The industry as a self-governing body must work out its own salvation through voluntarily imposed discipline upon its members. To enable the industry to carry out its self-imposed rules and regulations the Government has removed certain restrictions as to the organized efforts of the industry. The Government is merely to act as an umpire, to see that the rules of the game, upon which we expect to reach agreement here, shall be maintained without injustice to all who are engaged in the industry."

Other speakers during the first day of the meeting included spokesmen of the regional divisions of the industry and of public conservation organizations, among them John M. Bush for the Lake States, J. E. Johnston for the Northeast, D. T. Mason for the Western Pine Region, W. B. Greeley for the Pacific Northwest, S. R. Black for California timber interests, Henry E. Hardtner for the Southern pine region, C. Arthur Bruce for the hardwood industry, S. B. Copeland for the pulp industry, R. E. Benedict for the naval stores industry, Franklin Reed for the Society of American Foresters, Ovid Butler for The American Forestry Association, Fred Brencman for the National Grange, and W. R. Ogg for the American Farm Bureau Federation.

Colonel Greeley, former Forester and now

Secretary-Manager of the West Coast Lumbermen's Association, told the conference that his industry is prepared to meet its obligation under Article 10 by putting into effect under authority of the Code methods of cutting and fire prevention that in every reasonable degree will insure the prompt regrowth of timber on cut-over lands. This should be done, he said, by silvicultural measures and adequate fire protection. "From this point on," Colonel Greeley stated, "we believe that successful accomplishment of the obligations of Article 10 rests primarily upon vigorous action by the state and the Federal Governments. Their action should be directed toward stabilizing the present chaotic and uncertain status of commercial forestry and forest ownership, and toward inducing by every reasonable means as much permanent ownership of forest lands and sustained production of timber, by private or commercial agencies, as can be brought about." Colonel Greeley said he referred to public cooperation in protecting the forests from fire, insects and diseases, to needed changes in the present ad valorem taxation of forest lands, to conservative marketing and utilization of timber under Government ownership or control, and to the operation of co-operative sustained yield units by the Government and private owners. The West Coast Marketing and Lumbering Division, he declared, endorses fully the general program of forest acquisition proposed in the Copeland Report and advocates an acquisition program in the Pacific Northwest that will consolidate and round out existing National Forests, provide a home for marginal and tax delinquent lands and expand the opportunities of the Federal Government to cooperate with private owners in sustained yield management. In concluding his remarks, Colonel Greeley declared, "we must lift this undertaking above the plane of usual forestry resolutions or platforms. We have tackled a real job in Article 10. The industry is prepared to do its part in good faith. To carry out the whole enterprise and command necessary public support will require a dramatization of the 'new deal' in forestry and a drive to put it over comparable to the National Recovery Campaign."

S. R. Black of San Francisco, Secretary of the California Forestry Committee, called the conference's attention to the failure of the Federal Government to carry its share of the cooperative fire protection program under the Clarke-McNary Act. If the Government is not to be depended upon to do its part in fire protection during times of economic stress, there can be no permanence to a protection program. He presented a plan of public financing to aid timber owners in meeting their annual timber taxes over long periods.

Henry E. Hardtner of Urania, Louisiana, devoted most of his talk to the question of taxation, stating that that is the one big obstacle to industrial forestry in the South. He said he had been practicing conservation on his own lands for over twenty years and he wanted to continue to do so, but that annual taxes had become so burdensome they threaten to confiscate his property.

The second day of the conference was devoted to open discussion of the principal subjects involved in the proposed conservation program; namely, woods practice, forest taxation, forest credits, farm woodlands, public policies of timber disposals, land acquisitions, etc. Committee hearings on these subjects were held on the third day of the conference, and the reports of the Committees taken up and acted upon at the final afternoon session. The rule that all the proposals submitted to the conference were to be considered by the Committees, it was decided at the request of the Industry, would be submitted to the regional divisions irrespective of whether or not they had received the approval of the Committee to which they had been referred.

When Writing Advertisers—Mention AMERICAN FORESTS

NURSERIES

COVER AMERICA'S LOST DOMAIN

Bare, burned over acres can be brought back. Hillsides and valleys can be made green, and profitable. Plant the vacant, bare fields with

Black Locust

Red or Black Pines

Norway or White Spruces

Prices have not yet been increased. A little money invested now begins at once to grow into dividends. Write for our Autumn price list of trees for forest planting and lining out.

KELSEY NURSERY SERVICE

50 Church St., New York City

TREE SEED

FOR

FOREST AND NURSERY

HERBST BROTHERS, INC.

TREE AND SHRUB SEED SPECIALISTS

92 Warren Street, New York, N. Y.

Trees for Forest Planting

PINE :: SPRUCE

**Firs, Arborvitae and Other
Conifers. We raise all our
trees in our own nurseries**

KEENE FORESTRY ASSOCIATES

KEENE, NEW HAMPSHIRE

EVERGREEN TREES

FOR FOREST PLANTING

CERTIFIED White Pine, free from blister rust, Norway and White Spruce, Scotch and Red Pine and other varieties. Know our reasonable prices. Get our figures on Contract Planting.

Western Maine Forest Nursery
Dept. A-123, Fryeburg, Maine

FRANKLIN FORESTRY CO.

Nurseries at

Sudbury, Shelburne Falls and Colrain, Mass.

EVERGREENS AND PERENNIALS

SEND FOR CATALOGUE

89 STATE ST., BOSTON, MASS.

Classified Ads

Advertisements from reputable individuals and concerns will be inserted under this head at the rate of 10¢ a word per insertion, cash with order. Display rates on application. No advertisement will be inserted for less than \$1.00. Abbreviations, initials and letters will be counted as words. Name and address must be given, as advertisements will not be inserted in this section with only a box number. Address all orders to Classified Advertising Department, AMERICAN FORESTS Magazine, 1713 K Street, N. W., Washington, D. C.

GLASS EYES

TAXIDERMIST SUPPLIES, TOOLS, ETC.
HEAD FORMS AND PANELS

Largest stock of Eyes in the world. Millions to select from **Catalog FREE**
"SCHOEPPER EYES" 134 West 52nd St. NEW YORK

Cameras

SAVE 35% TO 60% on used or new Kodaks, Cameras, Motion Picture Cameras. Latest Bargaingrams will be mailed free. Write for your copy to Camera Headquarters, BASS CAMERA COMPANY, 179 W. Madison St., Chicago, Ill.

Periscopes—Binoculars

PRISMATIC Periscope 7/8X; highest quality achromatic 6 lens system; cost Government \$67; fine sole leather case included, \$5.50 postpaid. 15 Power Telescope; same high quality; 33mm, length 21" postpaid \$7.50. Fiala, 47 Warren St., New York.

Tobacco

FINEST HAND PICKED MELLOW AGED Long Red Leaf Chewing or Mild Delightful Cigarette or Pipe Smoking 5 pounds either only \$1.00. Perfect satisfaction strictly guaranteed. Pay when received. Morris Brothers, Fulton, Kentucky.

WANTED

by responsible Manufacturing Company

Competent Sales Representatives as exclusive State Distributors of Hardware specialties in great demand.

Preferably men with Forestry or Highway maintenance experience, of practical executive type, accustomed to deal with State government departments, Municipalities, Public Utilities, Hardware dealers, etc.

Investment from \$1,000-\$2,000 required. State qualifications in detail in first letter. References required. Address:

Box V
American Forests Magazine
1713 K St., N. W., Washington, D. C.

Half-Tone and Line Cut Loan Service

In meeting requests for the loan of half-tones and line cuts used in AMERICAN FORESTS, the Editors announce the following policy:

(1) Request for the loan of used cuts will be approved insofar as the cuts are available, and the photographs not subject to copyright or authors' restrictions. Requests will be filled in the order received.

(2) No rental charge will be made, but in order to defray actual costs of handling and postage a minimum charge of \$1.00 per set of cuts loaned will be made.

(3) All cuts borrowed must be promptly returned, postpaid.

(4) If desired, used cuts may be purchased outright at half price.

(5) Cuts are loaned only on condition that the credit line "Courtesy of AMERICAN FORESTS" be used on publication. Photographs appearing in AMERICAN FORESTS are protected by copyright, therefore reproduction should not be made without first obtaining the approval of the Editors.

Address—Cut Service

American Forestry Association
1713 K St., N. W., Washington, D. C.

TREES FOR THE PRAIRIES

(Continued from page 555)

and supplements with a few from state and federal sources. In several other states the trees are shipped direct from the experimental farms. The remaining states have contracted with commercial nurseries to furnish quantities of seedlings at low costs. In all cases efforts are made to propagate the seedlings under conditions very similar to those prevalent on the farms and ranches.

Seedlings vary in age when sent out from the nurseries. None of them, however, are very old or very large. Experimentation and experience have proved that small trees have a much better chance to become acclimated. Broad-leaved varieties such as cottonwoods, box elders and locusts are usually from one to two years of age when they are shipped from the nurseries. The conifers, or evergreens, are usually from three to five years old. The latter varieties must be transplanted from cold frames to field plots and remain there for a least a year before they can be sent out for open field planting.

At the various experimental farms efforts are made to keep a record not only of all trees planted on the station grounds but also of those shipped to all parts of the region for farm planting.

At Mandan, North Dakota, the work has been divided into two distinct phases. The first phase is termed "experimental test plantings" and includes the planting and care of various species testing blocks, as well as the making of shelter-belt experimental combination tests. The second phase of the station's activities is termed "public relations work" and includes conducting shelter-belt planting, pruning and cultural methods tests, together with the distribution of seedlings to farmers and the gathering and filing of all data available concerning reasons for successes and failures of farm plantings.

Experiences and statistics of the Mandan station are given here not only because they are representative of the work being done at all the plains area stations, but also because conditions existing in the general vicinity of Mandan are by far the most adverse to be met anywhere in the entire territory. At this station the growing season averages only 134 days. The rainfall, over a period of forty years, has averaged only seventeen inches a year. Yet despite conditions sometimes disheartening to the farmer, a great majority of the 3,000,000 trees thus far distributed by the Mandan station are not only alive but are growing vigorously.

In order to determine in a general way the ability of a certain species of tree to survive and thrive in competition with trees of different species, a series of twenty-two shelter-belt combinations have been tested at Mandan. Such tests enable the station workers to tell farmers which varieties should and should not be planted together in shelter-belts and farm woodlots.

From the years of careful experimentation and record keeping, many of the experimental farms have gathered invaluable data as to the adaptability of many species. Although it is impossible to say that a certain tree can or cannot be grown successfully in a specific locality, the lists kept for guidance of planters are now being followed with a minimum number of failures.

For the northern Great Plains area the hardwood trees recommended are the green ash, box elder, American elm, Chinese elm, cottonwood, lance-leaved cottonwood, northwest poplar, caragana, Russian olive, buffalo-berry, chokecherry and wild plum. The conifers

or evergreen species that have been successfully grown are the western white spruce, jack pine, blue spruce, eastern red cedar, Rocky Mountain red cedar and the western yellow pine.

Farther south, in the central Great Plains area, almost all of the above mentioned species can be grown. J. F. Brandon, superintendent of the Akron, Colorado, experimental farm, recommends for this region the Russian olive, hackberry, American elm, Chinese elm, white ash, catalpa, osage orange, black walnut, cottonwood, and soft maple. The black locust grows very well, but is not recommended for planting because of the havoc wrought by the black locust borer. Western yellow, jack and Austrian pines are the best conifers for the central area.

The list of trees recommended for planting in the southern Great Plains area includes the Russian mulberry, American elm, honey locust, green ash, Russian olive, cottonwood, osage orange, hackberry, black walnut, caragana, Chinese elm and Chinese arborvitae. Eastern red cedar, Rocky Mountain cedar and Scotch pine are also planted with success.

The low-branching, compact species most suitable for wind-breaks are caragana, Russian olive, buffalo berry, chokecherry, wild plum, and Russian mulberry.

Any of the species can be used for fuel. Of the species adapted to the Great Plains, cottonwood, American elm, western yellow pine, and Scotch pine will make the best lumber.

Undoubtedly the most outstanding phase of plains area reforestation work is the success scored by the western yellow pine, a conifer native to the foothills of the Rocky Mountains. Over a period of many years and under very severe tests this conifer has proved its merit.

Many are the factors that tend to discourage tree planting in the prairie region. Drought, heavy wind, winter killing and insect damage all take their toll of the tender seedlings. Yet by planting proper varieties, and by giving them care and attention, it is now possible to have an abundance of trees on the plains area farm or ranch.

With the coming of shelter-belts and groves, the prairie has lost its weary sameness and brown monotony. It has become a land of inviting farms.

HOWITZERS OF THE WOODS

(Continued from page 557)

munities. He cuts a forked branch from the witch hazel and grasping an end in each hand, holding the stem erect, he passes over the ground. When the wand bends downward the proper place to dig the well is found. He then approaches this spot from another direction to check his results, and if the wand bends downward again, the well is dug. The writer cannot vouch for the efficacy of this method.

We give certain attributes to trees. In the oak we see sturdiness; in the elm, grace; in the birch, purity; in the willow, suppleness. We can add still another attribute to the witch hazel, more than those given, that of bravery. It blossoms when all its companions have succumbed to the frosts. We regret that it does not possess sufficient courage—or witchery—to endure so that we might use its florescence to make gay our homes and hearts at Yuletide and find in its catapult powers a toy to amuse the young and old alike. It does its best to wish you a Merry Christmas and may its wish be fulfilled.

When Writing Advertisers—Mention AMERICAN FORESTS

SUNRISE AND SNOW

(Continued from page 546)

deliberately the rose colored veil moved downward; below lay the blue, diminishing into a lavender haze, while above the white poured its dazzling brightness over the slopes.

Mount Rainier, that grand old sentinel of the ages, once an inferno of lava and fire, was now silent in a crystal shroud of eternal snow, its three-point crater rim mellowed by countless years of erosion.

Sunrise Park! How dramatically it lives its name. Placed by nature in full view of that mighty Beacon of the Morn that towers fourteen thousand four hundred feet into the sky.

After breakfast cameras were loaded, skis were clamped on and we went forth into a wondrous land. Virgin country, it was, unexplored. Down where the plateau rolled over the slopes and drifts from the blizzard had buried the trees in twenty feet of snow, their conical tops protruding in clusters like villages of silent teepees. We cut new trails into the solitudes. The world was ours alone.

Skis underfoot and mortal man is bequeathed with an attribute of a higher realm, an exaltation known perhaps by birds. He swoops down long clean slopes with the stinging air whistling around his body, cutting at his face and forcing into his lungs; he banks at a turn with the wake of snow showering behind like a spray of jewels; he slips between shrouded silent trees and skims along the edges of yawning depths. There is the fascination of daring, the joy of speed, the stimulation of cold that exalts and glorifies.

This day of sunshine in virgin fields we discovered to be a world of jewels. The snow beneath, the trees about us, even the air above danced in shimmering brightness. A stream of scintillating light flowed into the depth of the glacier; call it refraction through snow-dust if you please, it was in reality a shower of diamonds cast from the sun to our world of snow. How else could they have become strewn so profusely about us? The landscape left the paradoxical impression of softness and solidity—softness in the swelling contours of fluffy snow, solidity in the geometric forms of trees and wind-cut hollows. The phantom saucer-shaped clouds again hung inverted over the mountain's crest like a range of astral mountains hovering above its earthly counterpart. About the towers of Little Tahoma a mist appeared with brilliant spectrum edges swathing the defiant papoose in a blanket of many colors.

The camera work kept our mornings filled, my portfolio of water colors grew. Twelve days passed in that land of wonder.

Joe was wiping a filter with a gray handkerchief. "Well, boys, I guess we've cut the cake. Let's get back to earth."

The idea gained impetus and early that afternoon we were again swinging along under the weight of packs, heading back for the lower station on the White River.

The setting sun transformed the Cascade Range into heaps of glowing embers, sinking into gray ashes as we descended. A wan crescent moon took up the torch of the dying day and cast a diffused light among the trunks.

We were now in heavy timber. Our trail was lost but our way was always down. Once again we came upon the ranger station gable in the moonlight of White River Valley.

Hot coffee, then on down the river trail. I glanced behind; there stood the mountain, a colossal heap of silver above the inky timber. A blotch of cloud passed across the thin crescent. Again I looked behind. The greater bulk was lost in stygian blackness, only the tip shone forth in a pale and bluish light—a meager token of silver was all that remained.

Tree Planting Features Mount Vernon Pilgrimage

On their annual pilgrimage to Mount Vernon which was held October 21, Boy Scouts engaged in conservation activities which will have far-reaching results. Under the leadership of the National Nut Tree Planting Committee they shook walnuts from the limbs of a tree which has stood for many years near the home of George Washington, and set out young grafted trees on one of the roadways. The seeds they gathered will be sent for plant-



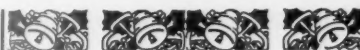
Gathering Walnuts at Mount Vernon

ing into many sections of the United States and the young trees of improved varieties will in a very few years be a source of finer seeds nurtured in the soil of Mount Vernon. Moreover, the Mount Vernon ceremony, as always, served as the inspiration for numerous other pilgrimages to be held at American shrines when youngsters will gather seeds and plant trees.

Because the prime purpose of their patriotic conservation program is the planting of native nut trees, the National Nut Tree Planting Committee proposed the planting of nut trees at Washington's home on the Potomac as a return for the thousands of seeds which they have gathered there over a period of years. Their offer was accepted by Mrs. Alice Richards, Regent of the Mount Vernon Ladies' Association of the Union, and the trees were given to the committee for this purpose by John W. Hershey of Downingtown, Pennsylvania, secretary of the Pennsylvania Nut Growers' Association.

Colonel Harrison H. Dodge, superintendent at Mount Vernon, greeted the Scouts and wished them well in the project which has developed over a period of fifteen years. G. H. Collingwood, forester of The American Forestry Association, introduced the speaker, Thomas P. Littlepage, and the donor of the grafted trees, John W. Hershey.

The organizations which are represented on the committee directing the National Nut Tree Planting Program are Boy Scouts of America, The American Forestry Association, Department of Agriculture, and American Walnut Manufacturers' Association.



This Christmas...

MAKE your gifts more than just fleeting remembrances.

● MAGAZINES are today more and more universally used as Christmas Gifts, and there are two important reasons for this trend.

● FIRST, the gift is spread out over a period of twelve months and offers far greater value than some other gift which is only temporarily used or liked.

● SECOND, there are magazines today to fit the interest of every individual. By your continued interest in The American Forestry Association you have indicated your interest in American forests and American wild life. You undoubtedly have many friends whose interests are the same.

● THIS CHRISTMAS send them a year's subscription to AMERICAN FORESTS at \$4.00. In addition to the twelve 1934 issues, we will send a complimentary copy of the December, 1933, Christmas number, enclosing an engraved Christmas card bearing your name as the donor. Please act today so that there will be no delay in handling your order.

**The American
Forestry Association**
1713 K Street, N. W.
Washington, D. C.



When Writing Advertisers—Mention AMERICAN FORESTS

Index to
ADVERTISERS

DECEMBER, 1933

	PAGE
American Tel. & Tel. Co.	2nd Cover
Bass Camera Co., Inc.	574
Chalfonte-Haddon Hall	562
Council Tool Co., The	572
Fechheimer Brothers Co., The	571
Fiala Outfits	574
Franklin Forestry Company	573
Happy Days Publishing Co.	569
Herbst Brothers, Inc.	573
Hester Plow Company, Inc.	4th Cover
Hough Company, R. B.	571
Idaho School of Forestry	566
Keene Forestry Associates	573
Kelsey Nursery Service, F. W.	573
Lincoln Hotel	566
Long Bell Lumber Co., The	561
Maine School of Forestry	571
Morris Bros.	574
Morrison Hotel	568
New York State College of Forestry	568
Panama Pump Company	569
Plumb, Inc., Fayette R.	565
Porter, Inc., H. K.	567
Schoepfer, G.	574
Smith & Co., D. B.	564
Victor Tool Company, The	564
Warren Tool Corporation	561
Western Cartridge Company	563
Western Maine Forest Nursery	573
Winship, Boit & Company	567

WITH THE TEXAS FOREST ARMY

(Continued from page 548)

by local communities for people who cannot afford to buy their winter's fuel. Some house logs are being put aside for the forester's house to be built at the camp. After drying, the telephone poles will be creosoted.

There is no leaning on shovel or cross-cut saw handles, no loafing on the job, no time-killing among these boys. They work steadily, aware of the job to be done and how to do it. This, perhaps, is as it should be, for most of the boys were from east Texas and many had been brought up in the woods or on farms.

The boys adapt themselves to the climate and the job. They work stripped to the waist, and are as brown as Indians. Some work in nothing but a hat, shoes and socks, and trunks, which is a pretty good costume after one has become hardened to mosquitoes. Practically all of them have put on weight, and they look fit and husky.

Conditions, of course, vary in the different camps, due chiefly to location, character of the work, camp administration, and the personalities of the camp commanders.

At one camp I found the men wearing a special C.C.C. insignia above the pockets on the left breast of their shirts. The leaders wore three embroidered bars with a symbol of their particular job above on their left sleeves. Assistant leaders wore two bars. There was genuine pride in these sleeve ornaments. In this same camp, which was in a park on the edge of a small town, the captain had secured permission to fix up a large hall which was originally a camp meeting house. He had screened in the sides, put in a floor, tables, benches, divided off space for the kitchen, storehouse, wash tables for dishes, and had invested in tableware for the men to use, instead of the regular Army mess kits. The effect on the men was evident. This camp also went in strong for baseball, having six organized teams.

At another camp I found a marathon dancer, who had been in marathons in New Orleans, Miami, New York and Boston—a fine looking, bright young chap. He was orderly for the officer's mess in this camp. In fact, any kind of vocation is represented in these camps.

After inspecting twenty-eight of the C.C.C. camps in Oklahoma and Texas, my distinct impressions are these:

That the men are being well cared for; that they are as husky a bunch of young men as I have seen in many a day; that they are doing a good job with no loafing, turning out a lot of really worthwhile, permanent work in improvement of the forests, in protection of the woods, and in checking soil waste; and above all, they seem contented, glad of the chance to work on outdoor jobs which are truly conservation. They are getting, outside of the pay and other perquisites they receive, splendid training in orderly living, in orderly working, in personal cleanliness, in association with a high type of men in the Army and the civilians under whom they work. This training will be with them for the rest of their lives.

Grant for Forest Genetics

The Board of Trustees of the Institute of Forest Genetics, at Placerville, California, has announced a grant of \$2,800 by the Carnegie Institution as an emergency aid in the work of the Institute. This supplements a grant of \$2,100 made by the Carnegie Institution in the spring.

WHO'S WHO

Among the Authors in This Issue

E. R. NORLING (*Sunrise and Snow*) is an artist who lives in Seattle. He was born in the small village of Pasco, Washington, and attended Whitman College but left before graduation to study at the Chicago Academy of Arts and the Chicago Art Institute. First he intended to become an architect but he soon found his interests lay in sculpture and painting. Today he is well-known for his unusual ability.

ALAN F. ARNOLD (*The Forest of Bussaco*) a member of the faculty of the New York State College of Forestry at Syracuse University, is a landscape architect connected with the Department of Forest Recreation and Park Engineering. He studied at Harvard, served in the Infantry in France during the World War and has made several other trips to Europe. The foresters in Portugal with whom he came in contact when he was working on this article said that as far as they knew he was the first American connected with forestry to visit the forests of Portugal.



John D. Guthrie

JOHN D. GUTHRIE (*With the Texas Forest Army*) is Forest Liaison Officer for the Civilian Conservation Camp at Fort Sam Houston, San Antonio, Texas. He was born at Dorchester, Massachusetts, and is a graduate of the Massachusetts Institute of Technology. A civil engineer,

he has been connected with many municipal water works enterprises, among them as Assistant Engineer on the water supply of New York City.

J. H. STEPHENSON (*Michigan Elk*) has been connected with the Michigan Conservation Department for the last seventeen years, during which time he has served as conservation officer, forest fire warden, state land examiner, and forest and game cover mapper. During the last five years he has been in charge of game refuge and public hunting ground development for the Game Division and of emergency conservation work on refuge tracts.

CRISTEL HASTINGS (*Mistletoe Sans Sentiment*) lives in Fortuna, California. She has written fiction, verse, historical and travel material for national magazines for a good many years. Her birthplace is the home of the world's greatest trees—the redwoods.

CLYDE BRUNDY (*Trees for the Prairies*) was born in Greeley, Colorado. For several years he has been staff writer for "Western Farm Life" of Denver, and at present he is working on a series of short stories built around the everyday life of a forest ranger. His recreations are travel, horseback riding, tennis, and contract bridge.

WAKELIN MCNEEL (*Forest Page for Boys and Girls*) lives at Madison, Wisconsin, where he is Assistant State Club Leader.

When Writing Advertisers—Mention AMERICAN FORESTS

The American Forestry Association



1713 K STREET, NORTHWEST

Washington, D. C.

President
GEORGE D. PRATT

Treasurer
GEORGE O. VASS
Assistant Treasurer
I. J. ROBERTS

Executive Secretary
OVID BUTLER
1713 K Street N. W.
Washington, D. C.

Forester
G. H. COLLINGWOOD
Business Manager
FRED E. HORNADAY

New York Offices: 468 Fourth Avenue

Vice Presidents

WILLIAM J. P. ABERG—Wisconsin
Chairman, Executive Board, Isaac Walton
League of America
DR. WALLACE W. ATWOOD—Massachusetts
President, National Parks Association
PHILIP W. AYRES—New Hampshire
Society for Protection of New Hampshire
Forests
DANIEL CARTER BEARD—New York
National Scout Commissioner, Boy Scouts of
America
LOTUS DELTA COFFMAN—Minnesota
President, University of Minnesota
DON B. COLTON—Utah
Representative in Congress
GEORGE CORNWALL—Oregon
Editor, *The Timberman*
SAMUEL T. DANA—Michigan
Dean, School of Forestry and Conservation,
University of Michigan
J. N. DARLING—Iowa
Cartoonist and Conservationist
L. E. FREUDENTHAL—New Mexico
American Farm Bureau Federation
WALTER S. GIFFORD—New York
President, American Telephone and Telegraph
Company
H. S. GILMAN—California
Member, California State Board of Forestry
DR. CHARLES H. HERTY—Georgia
Research Chemist
SCOTT LEAVITT—Montana
Representative in Congress
ALEXANDER LEGGE—Illinois
President, International Harvester Company
ELOISE P. LUQUER—New York
Past Conservation Director, Garden Clubs of
America
MRS. DUNCAN McDUFFIE—California
State Chairman of Conservation, Garden Clubs
of America
MRS. GRACE MORRISON POOLE—Mass.
President, General Federation of Women's
Clubs
J. C. SELLERS—Florida
Jacksonville Times-Union
C. E. SHERMAN—Ohio
Member, State Water Conservation Board
FREDERIC C. WALCOTT—Connecticut
United States Senator

Board of Directors

F. W. BESLEY, 1935—Maryland
State Forester of Maryland
W. B. BROWN, 1934—New Hampshire
Chairman, New Hampshire Forestry Commis-
sion
C. ARTHUR BRUCE, 1935—Tennessee
Director, Hardwood Manufacturers' Institute
HENRY SOLON GRAVES, 1937—Connecticut
Dean of Yale Forest School
WILLIAM B. GREELEY, 1933—Washington
West Coast Lumbermen's Association
W. B. GREELEY, 1936—New York
Camp Fire Club of America
A. S. HOUGHTON, 1934—New York
New York State Reforestation Commission
WILLIAM S. B. MCALEB, 1936—Pennsylvania
Pennsylvania Railroad
JAMES G. K. MCCLURE, JR., 1937—North
Carolina
President, Farmers Federation
JOHN C. MERRIAM, 1936—Dist. of Columbia
President, Carnegie Institution of Washington
JOY MORTON, 1933—Illinois
Founder, Morton Arboretum
GEORGE H. MYERS, 1934—Dist. of Columbia
GEORGE W. Sisson, JR., 1935—New York
American Paper and Pulp Association
LOUIS J. TABER, 1933—Ohio
Master, National Grange
WILLIAM P. WHARTON, 1937—Massachusetts
National Association of Audubon Societies

What the Association Is Working For

A DEQUATE FOREST FIRE PROTECTION by fed-
eral, state, and other agencies, individually and in co-
operation; the REFORESTATION OF DENUDED LANDS,
chiefly valuable for timber production or the protection of stream-
flow; more extensive PLANTING OF TREES by individuals,
companies, municipalities, states, and the federal government; the
ELIMINATION OF WASTE in the manufacture and consump-
tion of lumber and forest products; the advancement of SOUND
REMEDIAL FOREST LEGISLATION.

The ESTABLISHMENT OF NATIONAL AND STATE
FORESTS where local and national interests show them to be
desirable; the CONSERVATIVE MANAGEMENT OF PUBLIC
AND PRIVATE FORESTS so that they may best serve the per-
manent needs of our citizens; the development of COMMUNITY
FORESTS.

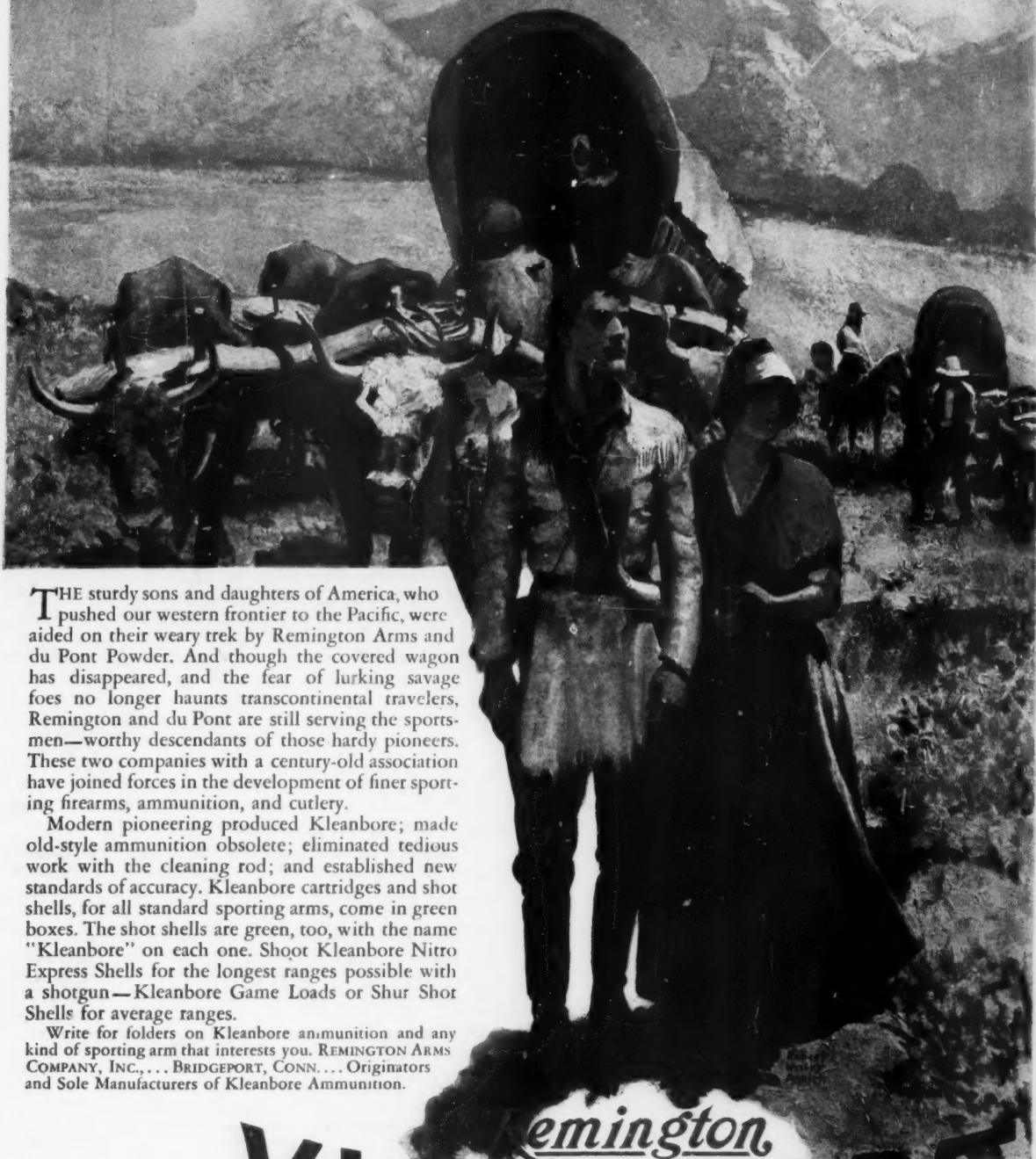
FOREST RECREATION as a growing need in the social
development of the nation; the PROTECTION OF FISH AND
GAME and other forms of wild life, under sound game laws; the
ESTABLISHMENT OF FEDERAL AND STATE GAME PRE-
SERVES and public shooting grounds; STATE AND NATIONAL
PARKS and monuments where needed, to protect and perpetuate
forest areas and objects of outstanding value; the conservation of
America's WILD FLORA and FAUNA.

The EDUCATION OF THE PUBLIC, especially school chil-
dren, in respect to our forests and our forest needs; a more aggres-
sive policy of RESEARCH AND EDUCATIONAL EXTENSION
in the science of forest production, management, and utilization, by
the nation, individual states, and agricultural colleges; reforms in
present methods of FOREST TAXATION, to the end that timber
may be fairly taxed and the growing of timber crops increased.

Member A. B. C.

Copyright, 1933, by the American Forestry Association

PIONEERS



THE sturdy sons and daughters of America, who pushed our western frontier to the Pacific, were aided on their weary trek by Remington Arms and du Pont Powder. And though the covered wagon has disappeared, and the fear of lurking savage foes no longer haunts transcontinental travelers, Remington and du Pont are still serving the sportsmen—worthy descendants of those hardy pioneers. These two companies with a century-old association have joined forces in the development of finer sporting firearms, ammunition, and cutlery.

Modern pioneering produced Kleanbore; made old-style ammunition obsolete; eliminated tedious work with the cleaning rod; and established new standards of accuracy. Kleanbore cartridges and shot shells, for all standard sporting arms, come in green boxes. The shot shells are green, too, with the name "Kleanbore" on each one. Shoot Kleanbore Nitro Express Shells for the longest ranges possible with a shotgun—Kleanbore Game Loads or Shur Shot Shells for average ranges.

Write for folders on Kleanbore ammunition and any kind of sporting arm that interests you. REMINGTON ARMS COMPANY, INC., . . . BRIDGEPORT, CONN. . . Originators and Sole Manufacturers of Kleanbore Ammunition.

Remington **KLEANBORE** AMMUNITION

KLEANBORE SHELLS: . GAME LOADS NITRO EXPRESS SHUR SHOT TRAP LOADS SKEET LOADS ARROW EXPRESS (Lacquered)



